UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

MEMORANDUM FOR: The Administrative Record

FROM: D. Robert Lohn

SUBJECT: Comments on the 2004 Draft FCRPS Biological Opinion

DATE: November 30, 2004

1.0 INTRODUCTION

This memorandum addresses the technical and policy issues relating to the September 2004 draft version of the FCRPS Biological Opinion (Opinion) that were raised by the agencies, groups, and individuals listed below in Section 2.0. NOAA Fisheries received detailed feedback from the affected states and Tribes, along with more than 28,000 e-mailed messages, almost 7,200 form letters, approximately 10,600 post cards, petitions containing more than 2,300 signatures, and approximately 60 letters from concerned individuals. Comments were due October 8, 2004, and those from major stakeholders in the Columbia River basin were posted for public review at: http://www.salmonrecovery.gov/R_biop_comments.shtml and are part of NOAA Fisheries' administrative record.

2.0 THE COMMENTERS

The following table lists those groups and individuals from whom NOAA Fisheries received comments on the draft Opinion.

Number	Group or Agency	Author	Received
1	American Rivers et al.	28,000+ individuals	ongoing
2	None specified	Ray Hall	9/20/04
3	None specified	Bob Welsh	9/16/04
4	None specified	Bobbee Murr	9/20/04
5	Native Fish Society	Bill Bakke	9/14/04
6	**Columbia-Snake River Irrigators** Association	James Buchal	9/22/04

Number	Group or Agency	Author	Received
7	NW Power & Conservation Council		10/4/04
8	Fish Passage Center	Michele DeHart	10/4/04
9	Sierra Club	Jeffrey K. Fryer	10/5/04
10	434 outdoor recreation businesses		10/7/04
11	Columbia River Towboat Assn.	John Pigott	10/5/04
12	Pacific Northwest Waterways Assn.	Glenn Vanselow	10/7/04
13	USGS BRD Columbia River Research Laboratory	Sally T. Sauter	10/6/04
14	State of Oregon	David Leith	9/30/04
15	Okanagan Nation Alliance	Deana Machin	10/7/04
16	Confederated Tribes of the Colville Reservation	Joseph Pakootas	10/8/04
17	State of Idaho	Jim Yost	10/8/04
18	Pacific Environmental Advocacy Center	Daniel J. Rohlf	10/8/04
19	Port of Whitman County	Commissioners Robert Gronholz, Dan Boone, and John Love	10/8/04
20	Port of Lewiston	David R. Doeringsfeld	10/8/04
21	Port of Benton	Scott D. Keller	10/8/04
22	Native Fish Society	Richard Kennon	10/8/04
23	Lower Columbia River Estuary Project	Debrah Richard Marriott	10/8/04
24	State of Washington	Gary Locke	10/8/04
25	Port of Clarkston	Rick M. Davis	10/8/04
26	Northwest Irrigation Utilities/Northwest Requirements Utilities	John D. Saven	10/8/04
27	Save Our Wild Salmon	Pat Ford et al. and over 20,000 SOS members	10/6-8/04
28	Washington Farm Bureau	Karen Budd-Falen	10/8/04
29	Snohomish County PUD	Joe McGrath	10/8/04
30	State of Alaska	Kevin C. Duffy	10/8/04
31	Coalition for Smart Salmon Recovery		10/8/04
32	State of Oregon	Michael Carrier	10/8/04
33	State of Washington	Jeffrey P. Koenings	10/8/04
34	Idaho Water Users Association	Norman M. Semanko	10/8/04
35	None specified	Carol Ampel	10/8/04
36	None specified	Linn Barrett	10/8/04
37	Public Power Council	C. Clark Leone	10/8/04
38	State of Montana	Judy Martz	10/8/04
39	Pacific Fishery Management Council	Donald K. Hansen	10/8/04
40	Inland Ports and Navigation Group	Walter H, Evans, III and Jay Waldron	10/8/04
41	Washington State Potato Commission	Pat Boss	10/8/04

Number	Group or Agency	Author	Received
42	Nez Perce Tribe	Anthony D. Johnson	10/8/04
43	Klickitat County	David McClure	10/8/04
44	PNGC Power	Kevin S. Banister	10/8/04
45	Confederated Tribes of the Warm Springs Reservation of Oregon	Bruce Jim, Sr.	10/8/04
46	Shoshone-Bannock Tribes	Nancy Eschief-Murillo	10/8/04
47	Confederated Tribes of the Colville Reservation	Camille Pleasants	10/8/04
48	Idaho Power	James C. Tucker	10/8/04
49	Columbia River Intertribal Fish Commission	Olney Patt, Jr.	10/8/04
50	US House of Representatives	102 Congress members	10/15/04
51	Upper Columbia United Tribes	Warren Seyler	10/15/04
52	Nez Perce Tribal Executive Committee	Anthony B. Johnson	10/15/04
53	Coeur d'Alene Tribe of Idaho, Columbia River Inter-tribal Fish Commission, Confederated Tribes of the Colville Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, Shoshone-Bannock Tribes, Umatilla Tribes, Yakama Nation	Comments were taken from transcripts of consultations with representatives of Tribal governments on development of the 2004 FCRPS Biological Opinion	10/8/04 and 10/15/04

3.0 THE COMMENTS

The comments that follow are sorted by the following topics:

- The framework for analysis
- Biological information
- The action area
- The environmental baseline
- The reference operation
- Estimating the gap
- SIMPAS
- Closing the gap – general
- Closing the gap – hydro
- Closing the gap – predation
- Closing the gap – habitat
- Closing the gap – hatcheries
- Cumulative effects
- Effects of the proposed action
- Performance standards
- Conclusions
- The Incidental Take Statement
- Other

The bracketed numbers after each comment correspond to the numbers in the list of commenters, above. For example, a comment similar to the one below in Section 3.1.1 was made by the Confederated Tribes of the Colville Reservation (16), the State of Idaho (17), Save Our Wild Salmon (27), the Pacific Fisheries Management Council (39), and the Confederated Tribes of the Warm Springs Reservation of Oregon (45).

3.1 The Framework for Analysis

3.1.1
Comments:

- *Because most of the risk to species is in the baseline, it is not assessed in the jeopardy analysis. The species may already be in jeopardy under the environmental baseline even before additional actions and incidental take are added. [16, 17, 27, 32, 39, 45]*
- *Since much of the FCRPS mortality is common to both the reference operation and the UPA, most mortality factors out in the determination whether the UPA appreciably reduces the likelihood of survival. [17, 42]*

Response: The risk to the species, as reflected in the species' current range-wide status and the action area environmental baseline, is a factor in determining whether the proposed action jeopardizes the continued existence of that species. The ESA consultation regulations, 50 C.F.R. § 402.02, define the "effects of the action" in relation to the effects of the environmental baseline. Thus they are the "direct and indirect effects of an action on the species or critical habitat . . . that will be added to the environmental baseline." The regulatory definition then goes into a very particular description of what constitutes the environmental baseline, including the effects of future federal actions that have already undergone ESA consultation. Although the effects of the past actions to construct the FCRPS dams fits within the definition of the environmental baseline, the continuing effects of that environmental baseline must be analyzed and considered when formulating NOAA's biological opinion. 50 C.F.R. § 402.14(g). As explained in Section 1.2.2 of the Biological Opinion, the "greater the current risk to the species within the action area under the environmental baseline, the more likely that additional adverse effects within the action area will" jeopardize the continued existence of the listed species. See also BiOp § 8.1.1 where the environmental baseline is an explicit factor in determining jeopardy.

Further, as a matter of statutory construction, it is improper to assert that a "species may already be in jeopardy under the environmental baseline." As used in Section 7(a)(2), the relevant question is not whether the species is "in jeopardy" but whether the proposed action "is likely to jeopardize the continued existence of the species." "To jeopardize" is further defined as an "appreciable reduction in the likelihood of both the survival and recovery of a listed species." 50 C.F.R. § 402.02 Thus, "to jeopardize" is an action to be avoided, while "jeopardy" (as used in the comment) is an undefined status.

Nevertheless, NOAA Fisheries agrees that the species face substantial risk under the environmental baseline. All biological opinions start with that reality, since the amount of risk a species faces is the reason it was listed for ESA protection. It is the task of all in the Columbia

Basin, including the Federal agencies, to work through recovery planning to reduce this risk so that these species may recover and ultimately be removed from the ESA list.

3.1.2
Comment:

- *The BiOp lowers the bar for restoration. [1, 8, 9, 10, 16, 18, 27, 36, 42, 45, 49, 50, 53]*

Response: The BiOp neither sets nor lowers the bar for restoration; that is the purpose of recovery planning. The purpose of the biological opinion is to apply the standards and procedural requirements of ESA §7(a)(2) as they are interpreted by the agency's consultation regulations, 50 C.F.R. Part 402. There is nothing in the evident statutory intent, as interpreted by the regulation, to mandate that an action accomplish the conservation objectives which are more directly addressed by ESA §§ 4(f) and 7(a)(1). As the environmental baseline is improved by conservation efforts to implement a recovery plan (§ 4(f)) or which otherwise contribute to the conservation purposes of the Act (§7(a)(1) or §10(a)(1)(A)), the Federal Action Agencies must not "reduce appreciably" those gains made. But the jeopardy standard of § 7(a)(2) is not designed to mandate that the Federal agencies make those gains.

3.1.3
Comment:

- *How do you weigh spill vs. non-spill economics? (There are losses associated with having no fish.) [53]*

Response: Economic considerations are relevant when developing a reasonable and prudent alternative (RPA). NOAA Fisheries does not consider economics when applying the substantive standards of ESA § 7(a)(2) for jeopardy and destruction or adverse modification of critical habitat. If NOAA Fisheries determines that the proposed action satisfies the standards of § 7(a)(2), then an RPA is not required. Thus, NOAA Fisheries has not weighed the economics of spill for this consultation.

3.1.4
Comments:

- *NOAA approves timber sales, grazing, road-building and other activities that cause conditions harmful to salmon. [49]*
- *NOAA has failed to articulate any meaningful rationale for why the FCRPS action does not jeopardize when NOAA Fisheries has made jeopardy determinations in other consultations on actions involving a far smaller level of incidental take. [32]*

Response: NOAA Fisheries' continuing objective is to consider the facts particular to each consultation and to consistently apply the standards of ESA § 7(a)(2), and its consultation regulations for all consultations. NOAA Fisheries is not aware of any consultations that do not meet this objective. Often the habitat actions are offset by mitigation. The approach we are taking for the hydro system is the same as is followed in other instances where adverse effects are offset with beneficial actions that may require an incidental take statement.

One significant factor that varies between consultations, and makes comparisons of outcomes less relevant, is the scale of the action area. For the FCRPS, the action area is large, encompassing the majority if not all of the freshwater range of the affected ESUs. For another action, such as a single culvert replacement project, the area affected may be significantly smaller. NOAA Fisheries considers the relative magnitude of the effects in the action area as one important factor when determining whether such effects constitute an appreciable reduction in the likelihood of both survival and recovery. See Section 8.1 of the Opinion.

3.1.5
Comment:

- *The BiOp abandons the "aggressive non-breach alternative" that the four affected governors had agreed to in 2000 and 2002, thereby putting not only the fish but also the FCRPS at risk. [10, 17, 24, 32, 33]*
- *The four lower Snake River dams should be removed. [1, 3, 9, 22, 27, 36, 46, 53].*
- *The four lower Snake River dams should not be removed. [26, 34]*
- *The BiOp should use the "all-H approach." [7, 29, 33, 44]*

Response: The comment refers to the Basinwide Salmon Recovery Strategy that NOAA Fisheries and the Federal Caucus adopted in December 2000, at the same time the 2000 FCRPS BiOp was issued. That strategy was a conceptual recovery plan, a precursor to the ESU-specific recovery planning that is currently under way. The 2000 BiOp referred explicitly to its role in the Basinwide Strategy. This Opinion no longer explicitly analyzes jeopardy with reference to recovery planning, because to do so requires speculation about future actions that cannot be considered under the consultation regulations, as determined by the Court in NWF v. NMFS. Many of the actions called for by the Basinwide Strategy have a Federal nexus but have not yet undergone ESA § 7(a)(2) consultation, or they are non-Federal actions that are not yet "reasonably certain to occur". Nevertheless, the Federal agencies continue to work from the Basinwide Strategy and its "aggressive non-breach strategy" in the course of preparing recovery plans for each listed species.

Since construction of these dams occurred before Snake River salmon were listed under the ESA, that action is beyond the scope of this section 7(a)(2) consultation. How to best deal with the effects resulting from the existence of these dams is an issue most appropriately considered by the Congress, which has plenary authority over federal facilities. The effect is also being considered in recovery planning. The Basinwide Salmon Recovery Strategy adopted by NOAA Fisheries and the other Federal agencies involved with the recovery of Columbia River Basin salmon is still in effect, and these agencies remain committed to taking the actions necessary to recover Snake River salmon without dam removal.

It is also important to recognize two other facts. First, none of the responsible Federal agencies currently has Congressional authority to significantly alter the Snake River dams. Therefore, absent new Congressional action, this is not likely to be a proposed action or "reasonable and prudent alternative" considered for the purposes of ESA section 7(a)(2). Second, only 4 of the 13 ESA-listed ESUs of salmon addressed in this opinion pass through the Lower Snake River dams. Removing these dams would have little if any benefit for the remaining 9 ESUs.

3.1.6
Comment:

- *The BiOp has no context (and no way to justify its findings) without a recovery plan. [37, 44]*

Response: ESA § 7(a)(2) and the consultation regulations (50 C.F.R. Part 402) require that the proposed action is not likely to "appreciably reduce the likelihood of both survival and recovery." A recovery plan is not necessary for the application of this standard. The current status of the listed species provides the necessary information about the current likelihood of survival and recovery under the environmental baseline, i.e., without the effects of the proposed action. Jeopardy occurs when there is an appreciable reduction in that likelihood. That determination can be made without the benefit of a recovery plan. It is also consistent with the limitations in the regulations about considering future actions to include in the environmental baseline and as cumulative effects. If a recovery plan were needed, then NOAA Fisheries would be required to make assumptions about future implementation of the elements of that plan, many of which are too far out in the future to meet the regulatory definitions. Many of the actions called for by a recovery plan will have a Federal nexus but will not have undergone ESA § 7(a)(2) consultation, or they will be non-Federal actions that are not "reasonably certain to occur" at the time of the consultation.

3.1.7
Comment:

- *There is no connection between management measures and recovery, because the entire concept of recovery has been eliminated. [16, 17, 27, 49]*

Response: The concept of recovery has not been eliminated. It is still part of the jeopardy analysis because avoiding jeopardy means avoiding an appreciable reduction in the likelihood of both survival and recovery (50 C.F.R. § 402.02). A biological opinion does not serve the same function as a recovery plan under the statute and the consultation regulations. Rather than consider the range-wide program necessary to achieve the conservation purposes of the ESA, the biological opinion plays the narrow role of determining whether the proposed action will reduce the likelihood of survival and recovery.

3.1.8
Comment:

- *FCRPS consultation differed from mid-Columbia HCPs (for which the performance standard was no net loss due to all the effects of the projects, including the structures). How does NOAA explain the inconsistency? [16, 53]*

Response: NOAA Fisheries applied the same ESA jeopardy standard for the issuance of its Incidental Take Permit (ESA § 10(a)(1)(B)) for the Mid-Columbia HCPs as it is applying here for the FCRPS. The Mid-Columbia HCP (Habitat Conservation Plan) was developed for a consultation with FERC concerning licensing decisions at those projects. The HCP was intended by the PUDs, NOAA Fisheries and other parties to satisfy both the ESA and the Federal Power Act requirements. The HCP's "no net loss" standard applied to all fish affected by the projects, including non-ESA listed fish, for Federal Power Act purposes. Since it was not feasible for the

program to entirely eliminate salmon mortality at the projects, the PUDs intend to make up for unavoidable losses with hatchery production. While these hatchery fish addressed the Federal Power Act requirements, the particular hatchery production from the Mid-Columbia hatcheries was not, in this case, considered a substitute for the listed fish affected by the projects for ESA purposes. In its biological opinion on issuance of the Incidental Take Permit for the HCP, NOAA Fisheries evaluated the adverse effects of the projects, authorized by the Incidental Take Permit, and determined that those effects were not an "appreciable reduction in the likelihood of both survival and recovery", the same standard applied for the FCRPS.

Also, for consultations involving the relicensing of a FERC-regulated dam (although not the action in the Mid-Columbia consultation), the proposed action involves both the continued existence and operation of the dam. In contrast, this FCRPS biological opinion involves only the operation of the dams. Thus, the baseline for these consultations is quite different and the mitigation necessary to avoid jeopardy may also be different.

In the mid-Columbia HCP, there was an objective of achieving sufficient mitigation that "no net loss" would result from the proposed action. While this is not a statutory requirement, it does represent a sound way to assure that the negative effects of the proposed action are fully mitigated. The FCRPS biological opinion takes a somewhat similar approach by identifying the difference between the reference operation and the proposed operation, and identifying additional actions to offset that difference. For most ESUs, the negative effects of the proposed action are likely to be fully offset over the course of the next ten years.

3.1.9
Comment:

- *Instead of working for a substantial or absolute improvement in the survival rate, the focus now is on a tiny incremental change in juvenile survival. [16, 32, 44]*

Response: Section 7 consultation is not oriented toward improving survival. The jeopardy standard applies to "actions" taken, not the weight of past actions that have accumulated in the environmental baseline. Thus, this Opinion isolates the precise action, the operation of the FCRPS, from its environmental baseline. Focusing on the proposed action, NOAA Fisheries determines the extent to which that action "reduces the reproduction, numbers or distribution of a listed species." The weight of past actions, which is the environmental baseline, is properly considered when determining whether any adverse effect caused by the action "appreciably reduces the likelihood of both survival and recovery."

3.1.10
Comment:

- *The cumulative effects discussion does not indicate whether it includes baseline FCRPS effects, or if everything excluded from the jeopardy analysis is also excluded from cumulative effects. [17]*

Response: Cumulative effects are specifically defined by the consultation regulations to mean future state or private activities in which there is no Federal involvement that are reasonably

certain to occur. By this definition, it does not include the activities in the action area considered in the environmental baseline.

3.1.11
Comment:

- *Tribal cultural resource concerns were not adequately addressed when measures to enhance UCR steelhead were not required in the Okanogan subbasin. [47, 53]*

Response: NOAA Fisheries places a high priority on its responsibilities for considering Tribal cultural resources and treaty rights, as discussed in Section 5.3.6 with respect to those resources and rights that are in the Environmental Baseline. Also, BPA has included actions to improve spawning and rearing habitat in the Okanogan as a conservation measure in the UPA. See p. 79 of the UPA.

3.1.12
Comment:

- *The BiOp fails to explicitly state how dam operations and habitat restoration activities will result in the maintenance or attainment of Clean Water Act standards in the Columbia River. [18, 32]*

Response: The Opinion is not a water quality document. It is a document responsive to the Endangered Species Act, not the Clean Water Act (CWA). Maintenance and attainment of water quality standards is a responsibility of the Environmental Protection Agency and the states' departments of environmental quality or ecology. This is not to say that the BiOp contradicts, interferes, or conflicts with the CWA. On the contrary, the 2000 BiOp set out a reasonable and prudent alternative that the Action Agencies could implement consistent with their obligations under the CWA. NOAA Fisheries will continue to function in this supportive, collaborative role on water quality actions and standards.

3.1.13
Comment:

- *Although the draft BiOp did not fully develop its conservation recommendations to the Action Agencies, NOAA Fisheries makes it clear that recovery planning is not part of the biological opinion. The only conservation measure in the draft BiOp was to support subbasin planning infrastructure, however, subbasin plans will only be effective if there is a recovery planning mechanism to deal with the FCRPS baseline. NOAA should clarify the role of conservation recommendations. [17]*

Response: Conservation recommendations are defined by the consultation regulations as "suggestions of the Service regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information." There are two kinds of tributary actions discussed in the UPA: actions to offset the effects of the hydro system and conservation actions. NOAA Fisheries' recommendation concerning subbasin planning infrastructure was for the development of information that would better target and coordinate the Action Agencies' conservation projects in the tributaries pursuant to 7(a)(1). Conservation recommendations, however, are not intended to take the place of

recovery planning, although their suggestions may often support the development and/or implementation of recovery plans.

Response: The concept of recovery has not been eliminated. It is still part of the jeopardy analysis because avoiding jeopardy means avoiding an appreciable reduction in the likelihood of both survival and recovery (50 C.F.R. § 402.02). A biological opinion does not serve the same function as a recovery plan under the statute and the consultation regulations. Rather than consider the range-wide program necessary to achieve the conservation purposes of the ESA, the biological opinion plays the narrow role of determining whether the proposed action will reduce the likelihood of survival and recovery.

3.1.14
Comment:

- *The Action Agencies need to monitor for toxic contaminants in the estuary as part of an ecosystem-wide approach. [23]*

Response: The Action Agencies are working with entities like the Lower Columbia River Estuary Partnership (LCREP), the Oregon Department of Environmental Quality, and the Washington Department of Ecology, and the Northwest Fisheries Science Center to implement the toxics portion of the RM&E plan.

3.1.15
Comment:

- *An ESA § 7(a)(2) consultation requirement has not been triggered because there is no action, such as relicensing, reissuing a permit or providing new government funding, rather there is just ongoing operation of the FCRPS. [28]*

Response: The statutory term "action" is broadly defined to mean "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies." See 50 C.F.R. § 402.02. Generally, a consultation is required whenever a Federal agency proposes to exercise discretion in a manner that "may affect" a member of a listed species. The action, described in detail in the Action Agencies' Updated Proposed Action, is a program of operations for the continued operation of the FCRPS. If nothing more, the Action Agencies are proposing to "carry out" the activities for which the system was built: navigation, flood control, power generation, irrigation, recreation, water quality, and fish and wildlife. This triggers a need to consult on the exercise of their discretion.

3.1.16
Comment:

- *The BiOp should include USBR's upper Snake River projects. [27]*

Response: The USBR's projects in the upper Snake River basin are a separate action subject to a separate consultation. Although the USBR could choose to combine a number of similar separate actions in a single consultation pursuant to § 402.14(c)(6), as it has done for the 19 USBR projects that are also evaluated with the FCRPS in this Opinion (and as it has done in past

FCRPS biological opinions), such combination is at the discretion of the USBR and is not a mandatory requirement of the ESA or its regulations.

3.1.17
Comment:

- *NOAA has no legal duty to reach a jeopardy conclusion based upon the negative effects on listed salmon from sources other than FCRPS. [28]*

Response: NOAA Fisheries agrees that an ESA § 7(a)(2) analysis starts with a consideration of the proposed action alone and determines if that action will cause either (1) a reduction in the reproduction, numbers or distribution of a listed species, or (2) an alteration of an essential feature of designated critical habitat. If the action does not cause either, then the analysis need not go any further, because it is impossible for a benign or beneficial action to be inconsistent with the ESA § 7(a)(2) standards. NOAA Fisheries does consider other actions in the action area, however, when it determines whether (1) the reduction "appreciably reduces the likelihood of both survival and recovery," or (2) the alteration appreciably diminishes the value of critical habitat for survival or recovery. This determination is influenced by the effects of the environmental baseline and cumulative effects to which the adverse effects of the proposed action will be added. These will include the future effects of Federal projects that have already undergone ESA consultation and non-Federal actions that are "reasonably certain to occur."

3.1.18
Comment:

- *NOAA's focus on "appreciable reduction" without reference to survival and recovery goalposts renders it impossible to conclude there is no impact on "survival and recovery." [42]*

Response: NOAA Fisheries' application of the "appreciable reduction in the likelihood of both survival and recovery" standard does not require reference to goalposts for the future performance of the ESU. Instead the goalposts for the jeopardy standard are the existing likelihood of survival and recovery under the environmental baseline and cumulative effects, given the current status of the ESU. The goalposts for recovery are to be established in the recovery plan pursuant to ESA § 4(f)(1) ("for the conservation and survival of . . . the species").

3.1.19
Comment:

- *Under the new framework, it appears that NOAA Fisheries is abandoning any consideration of whether the proposed action will impede or delay recovery of the listed species. NOAA's new framework is inconsistent with its ESA Consultation Handbook, regional guidance (Habitat Approach), and with the 9th Cir. Court of Appeal decision (ALCOA v. BPA, 175 F.3d 1156 (1999)) and thus requires a rulemaking absent a reason to depart from its 1995 framework. [32]*

Response: NOAA Fisheries interprets the jeopardy standard of §7(a)(2), as defined in the regulations (50 C.F.R. § 402.02), to mean that an action that only impedes or delays recovery would not jeopardize the listed stocks unless the action also "appreciably reduces" the likelihood

of the species' survival. To "jeopardize" the listed stocks, the action must "appreciably reduce the likelihood of both the survival and recovery of a listed species." (Emphasis added) But, assuming that the action also appreciably reduces the species survival, an appreciable reduction in the likelihood of recovery is relevant to NOAA's jeopardy framework. Once NOAA determines that the action will reduce the "reproduction, numbers or distribution", NOAA must consider the effect of that reduction on the species likelihood of survival and recovery evidenced by the current status of the ESU and the environmental baseline and cumulative effects within the action area. If these adverse effects "appreciably reduce" the likelihood of both survival and recovery, then the action would be likely to jeopardize the continued existence of the listed species. In this way, an impediment to or delay of recovery could be part of a jeopardy determination.

This meaning of the jeopardy standard, which specifically targets actions that will reduce the likelihood of the species' survival and recovery, is further consistent with regulations that provide for informal consultation for actions that are "not likely to adversely affect" the listed species. 50 C.F.R. § 402.14(b). A Federal agency has no mandatory obligations for the improvement of the species under § 7(a)(2) where its action is not contributing to the species' risks.

NOAA Fisheries' "new framework" is not new but is the framework that has been in place for almost twenty years since its consultation regulations, 50 C.F.R Part 402, were adopted in 1986. What is new is the interpretation of these regulations by the District Court in *NWF v. NMFS* to focus the jeopardy analysis on the effects of the action, with reference to the environmental baseline within the action area and to any cumulative effects within the action area. NOAA Fisheries' interpretation of its regulations is consistent with the court's decision and with its longstanding regulations that must control absent a new rulemaking, as the comment suggests. Although the passage from a footnote to the Court of Appeals' decision in *ALCOA v. BPA*, was supportive of NOAA Fisheries' application of its consultation regulations for a biological opinion considering FCRPS operations for 1995 - 1999, it was made in a case where the regulations and their interpretation were not at issue. Instead the court was considering whether NOAA Fisheries had used the best science available for that biological opinion. It would be pure speculation to conclude from that passage that the Court would not agree with NOAA Fisheries again if it were to consider NOAA Fisheries' interpretation of its regulations that addresses the holding in *NWF v. NMFS*.

3.1.20
Comment:

- *An action that merely perpetuates a declining trend in the status of species actually ensures that the species will neither survive nor recover – the antithesis of section 7 and the ESA. [27]*

Response: The fact that a species' numbers are in decline is relevant to the § 7(a)(2) jeopardy analysis when evaluating whether any adverse effects of the action ("reduction in the reproduction, numbers, or distribution") "appreciably reduces the likelihood of both survival and recovery". The worse the status of the ESU, including any declining trends, the more likely that any adverse effects caused by the action will "appreciably reduce" survival and recovery

likelihoods. But if a proposed action will have no effect on the members of the listed species, or only a beneficial effect, then § 7(a)(2) will not prohibit the action or mandate that the action agency contribute to species conservation as a condition of undertaking an action.

3.1.21
Comment:

- *Given that all 199 actions of the RPA were necessary in 2000 for NOAA to determine that the Action Agencies' proposed action could go forward under the ESA, and that in December 2003, NOAA found substantial shortcomings in the implementation of the 2000 BiOp RPA that undermined its effectiveness, NOAA's contention that the new, substantially weaker draft 2004 BiOp UPA is sufficient to avoid jeopardy is not credible. Indeed, the only way for NOAA to reach that conclusion is to substantially lower the jeopardy avoidance "bar" by changing its legal interpretation of the ESA's jeopardy standard. [27]*

Response: The jeopardy standard is prescribed by ESA § 7(a)(2) and defined by the consultation regulations. These are the same standards as was applied by NOAA in its 2000 BiOp. Nevertheless NOAA's application of the jeopardy standard to the proposed operation of the FCRPS in the 2004 BiOp is different. First, the science considered is different than in 2000 because new data and analyses are available in 2004. Also, the details of the proposed action (which is an analogue of the RPA actions) are refined and updated to reflect current feasibility, funding and authority. But, as the comment suggests, the application of the standard is also different from 2000. In 2004, NOAA Fisheries answered the questions posed by the statute and regulation (unchanged from 2000) but this time more discretely for the FCRPS without reference to the future actions of other federal agencies, states or private parties. The 2000 BiOp considered the FCRPS actions as part of a prospective concert of actions by all activities affecting salmon (similar to the perspective of a recovery plan). The 2004 analysis, in contrast, focuses on the FCRPS proposed action within its action area. The 2000 approach did not attempt to delineate precisely what the FCRPS' responsibility would be distinct from that of all other future activities leading to the survival and recovery of the species; it anticipated that recovery planning would make that allocation. The 2004 BiOp applies the statutory and regulatory language carefully within the action area while avoiding speculation about future actions (not part of the UPA) that do not meet the regulatory criteria. Why the change in approach? NOAA had to rethink its application of the jeopardy standard to address the court's concerns. The 2004 analysis is more delineated to focus precisely on the effects of the proposed FCRPS action as distinguished from those of the environmental baseline and cumulative effects. For these reasons, it is not surprising that the results of the jeopardy analysis in 2000 and 2004 are not directly comparable.

For many of the same or similar reasons, NOAA's application of the critical habitat standard of § 7(a)(2) is different in 2004 than in 2000. In addition to the need to address the court's concerns about consideration of future actions and the action area, which equally apply to the critical habitat standard, NOAA also needed to consider the recent concerns raised in the Ninth Circuit Court of Appeals about the regulatory definition of "destruction or adverse modification."

3.1.22
Comment:
- *NOAA continually focuses on only federal actions that have occurred since 2000, but does not catalog, much less analyze, any of the actions that have occurred in the subbasins before 2000. [27, 49]*

Response: Although the analysis upon which the draft biological opinion was based includes the effects of the environmental baseline from actions before 2000, NOAA recognizes that the draft failed to provide documentation. Chapter 5 has been revised to address this comment.

3.2 BIOLOGICAL INFORMATION

3.2.1
Comment:
- *The maps in Appendix B should include the Okanogan basin as historical habitat for UCR steelhead and spring chinook. [16]*

Response: The maps in appendix B reflect UCR populations as identified by the Interior Columbia Technical Recovery Team. The UCR steelhead population map has been revised to include the Okanogan basin. However, the Interior Columbia TRT currently does not identify a current or historical UCR spring chinook population from the Okanogan.

3.2.2
Comment:
- *The BiOp makes no note of wild salmonid populations and the rivers where they are found. [5]*

Response: The locations where wild salmonid populations are found is relevant to the jeopardy analysis if the proposed action would affect the viability of these populations by creating or changing an existing interaction with hatchery fish. Therefore, in Appendix F (Artificial Propagation Potential as a Non-Hydro Offset for FCRPS Operations), NOAA Fisheries identifies subbasins that are "Reserved for natural production only" and thus not suitable for offsetting measures involving artificial propagation.

3.3 THE ACTION AREA

3.3.1
Comments:
- *The action area excludes tributaries and whole subbasins where adverse actions are affecting the fish. [27]*
- *The action area is too narrow. FCRPS indirectly affects all subbasins, and actions in some subbasins that aren't included affect the fish. The action area should include all tributaries and Canadian/Upper SR storage projects. [49]*

Response: According to the regulatory definition of "action area", the deciding factors for what geographic areas should be part of the action area for this consultation are the direct and indirect effects of the proposed action. Unlike the 2000 BiOp, which only included areas that were affected by the operations of the FCRPS facilities, the action area for this biological opinion is broader to also include areas affected by non-hydro actions undertaken by the FCRPS Action Agencies to offset the adverse effects of the water management operations and freshwater areas indirectly affected by the UPA.

NOAA Fisheries agrees with the comments that suggest that the action area ought to include tributaries where the amount of marine-derived nutrients has potentially been reduced due to the effects of the proposed FCRPS operation. See §§ 5.2.3 and 6.3.1.2.

The Upper Columbia Federal storage projects, Grand Coulee, Libby and Hungry Horse, which are operated as part of the FCRPS, are included in the action area as are the river reaches downstream of them affected by their operation. Neither the Upper Snake USBR projects nor the FERC-licensed Hells Canyon Project is part of this consultation, and therefore the area they affect in the Upper Snake basin and downriver through the Hells Canyon Dam is not part of the FCRPS action area. This is because the FCRPS Updated Proposed Action does not involve any operation affecting these projects, nor are they interrelated or interdependent actions with the FCRPS, as those terms are used in the consultation regulation's definition of "effects of the action". 50 C.F.R. § 402.02. All of these areas and projects are beyond the migratory range of the listed species affected by the FCRPS.

3.3.2
Comment:

- *The action area should include the segment of the Snake River downstream from Hells Canyon Dam or explain the basis for excluding it. [48]*

Response: The action area description now makes it clear that the free-flowing reach below Hells Canyon Dam is part of the action area. This is because the operations of the FCRPS could cause a reduction in the marine-derived nutrient loading for that reach.

3.3.3
Comment:

- *The map of the action area (Figure 5.1) should not include Hells Canyon, Brownlee Reservoir, or the Boise River diversion. [34]*

Response: Consistent with the previous responses about the action area, the Snake River upstream of, and including, Hells Canyon Dam is not in the action area for this consultation. Figure 5.1 has been revised to remove references above that dam that might be misleading.

3.3.4
Comment:

- *The action area needs to include the Okanogan basin. [15, 16, 51, 53]*

Response: It is the consulting Federal agency or agencies that define the action, which determines the action area. In the previous draft, the Action Agencies did not propose any activities in the Okanogan subbasin. In the current version of the UPA, BPA's commitment to conservation measures in the Okanogan brings this subbasin into the FCRPS action area. This watershed also is part of the action area because of the potential that the FCRPS could cause a reduction in the delivery of marine-derived nutrients.

3.4 THE ENVIRONMENTAL BASELINE

3.4.1
Comment:

- *Tribal treaties, Pacific Salmon Treaty, and NW Power Planning Act should all be in the baseline. [9, 53]*

Response: The status of Tribal fisheries relative to the environmental baseline is discussed in Section 5.2.9. Fisheries that occur under the Pacific Salmon Treaty occur primarily in the ocean, outside of the action area, so they are not part of the baseline. As with any Federal actions, implementation of the NW Power Planning and Conservation Act by one of the relevant Federal agencies would only be part of the environmental baseline if that implementation has already occurred or if it has already undergone ESA § 7(a)(2) consultation.

3.4.2
Comment:

- *Navigation should be noted as a mandated purpose of FCRPS operations. [11]*

Response: NOAA Fisheries recognizes that navigation is an authorized purpose of the FCRPS. The purpose of an ESA § 7(a)(2) consultation is to evaluate the Corps' exercise of its discretion in carrying out its statutory obligations. While there is no question that the Corps must provide some level of river navigation, how it does so and to what extent consistent with other statutory purposes requires the Corps' exercise of discretion, which is also the subject of ESA consultation.

3.4.3
Comment:

- *Salmon mortality assessments are inadequate. The BiOp should address the effects of all sources of mortality on listed fish. [5]*

Response: A comprehensive profile of an ESU's mortality is relevant when NOAA Fisheries determines whether to list a species for ESA protection and then when it conducts status reviews. In a Section 7 consultation, only the sources of mortality within the action area are relevant for determining whether the additional adverse effects caused by the FCRPS operation jeopardize the ESU's continued existence. However, sources of mortality outside the action area affect the status of the ESU, which is a factor considered when assessing the likelihood of jeopardy within the action area. So all sources of mortality are considered in the description of the species range-

wide status. Finally, recovery plans make a comprehensive assessment of the factors limiting the ESU's recovery.

3.4.4
Comment:

- *Only the "nondiscretionary" operations with adverse effects are included in the baseline. [14, 32]*

Response: NOAA Fisheries disagrees with the comment that it only included adverse non-discretionary operations in the baseline. The deciding factor for determining what aspect of the FCRPS, its structures, and operations should be considered part of the environmental baseline and therefore not part of the proposed action is whether the Action Agencies lack ongoing discretion over such an aspect. NOAA Fisheries' practical solution to evaluating this theoretical principle is the reference operation in which it supposed an operation regardless of many of the Action Agencies' mandatory operational obligations and designed a reference operation to minimize mortality compared to other, alternative operations of the existing structures. In this way, the reference operation is conservative, because it underestimates the effects of the environmental baseline by including some non-discretionary operations as part of the proposed action. Thus, NOAA Fisheries overestimated the effects of the proposed action, exercising the precautionary principle in favor of the listed species.

3.4.5
Comment:

- *The BiOp fails to acknowledge evidence that yearling chinook have inadequate food resources in FCRPS reservoirs to get them through the longer trip. [49]*

Response: NOAA Fisheries agrees that there is some evidence to suggest food resources are limited in the reservoirs and that other effects may be associated with the fish's experience in the hydrosystem. However, these many effects are due to the existence of the dams and thus are common to both the reference and proposed operations. To the extent possible, NOAA Fisheries accounted for the direct juvenile survival differences between these operations in its analytical process. See Section 5.4.1.1.1 in the Opinion for further discussion of this issue.

3.4.6
Comments:

- *The baseline should include effects of UCR ESUs passing through the five PUD dams. [16, 53]*
- *The BiOp fails to include effects of the five PUD dams in its cumulative effects analysis of UCR ESUs. [16]*
- *Permitted levels of take for juvenile and adult UCR steelhead are not included in section 5.3.7.1.2, even though the info is critical to calculation of the relative survival gap. [16]*
- *The relative change in juvenile mortality caused by the FCRPS should be calculated with the inclusion of fish mortality effects of the five mid-Columbia PUD dams. If the effects of these dams were counted in the cumulative effects analysis, adverse effects of FCRPS on UCR steelhead and springs would be 50% higher. [5, 16]*

Response: Section 5.3.3.1.2 in the Opinion presents a discussion of the levels of take for both juvenile and adult UCR spring chinook and UCR steelhead permitted under the Habitat Conservation Plans for three FERC-licensed PUD projects in the mid-Columbia River reach. Based on this comment, allowable take permitted for the two ESUs under a May 2004 Biological Opinion covering Grant County PUD's Wanapum and Priest Rapids hydropower projects has also been added in this section. In addition, statements about the cumulative amount of juvenile and adult take allowed for the two UCR ESUs passing through all five mid-Columbia River FERC-licensed PUD projects were added to address the second part of this comment.

3.4.7
Comments:

- *USBR 427 kaf SR flow augmentations have ranged from 90-340 kaf and therefore have never met the target, so it's not true that flow targets from the 2000 RPAs have been implemented. [27, 32, 49]*
- *The BiOp fails to note that current operations often fail to meet flow targets. [49]*

Response: Regarding the first comment, USBR's release of up to 427 kaf from its Upper Snake projects is an action that occurs outside of the FCRPS action area and is the subject of its own ESA consultation. The certainty of providing a particular amount of water in any given year is the subject of that consultation and is beyond the scope of this FCRPS consultation. Nevertheless, that water contributes to the amount of water entering the action area at Lower Granite Reservoir for consideration in this analysis of the likely effects of FCRPS operations and are treated as factual inputs in the modeling. The flow objectives included in the Updated Proposed Action are the same as those to which the 2000 FCRPS BiOp refers. As explained in the 2000 BiOp and its predecessors, it has not always been possible or practical to achieve these flow objectives because of varying amounts of water available each year and conflicting biological priorities for water that is available. For example, flows from Dworshak Reservoir contribute to achieving flow objectives and are also a source of cold water advantageous for controlling temperature in the lower Snake River later in the migration season. Thus, that water may be saved for temperature control rather than used to meet flow objectives.

Regarding the second comment, NOAA Fisheries concurs that the established flow objectives for Lower Granite and McNary dams have not always been met in a seasonal average basis. Due to below-average runoff, the seasonal flow objectives have been met at both projects for both seasons in only one year in the past five. The fact that it is not always possible to achieve the McNary and Lower Granite dam flow objectives on a season-average basis was not clearly presented in the September draft Opinion. This oversight has been corrected, and the frequencies with which the reference operation and the proposed action would be expected to achieve the seasonal flow objectives are presented in the Opinion in Appendix D (see pages D-17 and D-18). Although the reference operation was expected to meet the summer flow objectives more frequently than the proposed action, neither scenario would always meet the flow objectives.

Flow objectives serve as a guide to manage available water resources during the juvenile and adult migration seasons and to provide a benchmark for comparing various operational scenarios that may affect in-river migration conditions. The seasonal average flow objectives are not hard constraints, although NOAA Fisheries' direction to the Action Agencies is for the FCRPS to be

managed with the intent of meeting these flow objectives both seasonally and weekly. The volume of water available in any given year reflects both natural precipitation and the management of water held in upstream storage projects. Hydrologic conditions and other constraints may preclude meeting these objectives at all times. Because water resources are insufficient to meet the seasonal flow objectives at all times under all conditions, in-season water management is used to provide the greatest possible biological benefit from the available storage volumes and system flexibility. Although meeting the flow objectives is an important consideration, it is not an end in itself. The flow objectives are but one of many factors to consider when making decisions about river operations to benefit listed fish.

The Action Agencies have multiple responsibilities affecting hydro system operations, including flood control, power production, protection of anadromous and resident fishes and wildlife, navigation, recreation and irrigation, among other uses. In making operational decisions to meet other FCRPS project purposes and regulatory requirements, the Action Agencies will take all appropriate actions within their authorities to protect listed salmonids.

3.4.8
Comment:

- *The Action Agencies' recent implementation of VARQ flood control operations, as defined in the 2000 FCRPS Biological Opinion, reduces the probability of meeting target flows for chum salmon below Bonneville Dam. The reference operation should include significantly higher chum spawning, incubation and emergence flow objectives below Bonneville Dam than what are currently assumed in the reference operation (which is a flow target of 130 kcfs). [32]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies. The Action Agencies will be addressing comments to the UPA scope when they issue their records of decision.

Concerning the second part of the comment recommending significantly higher winter-spring flows for chum spawning and incubation in the reference operation, NOAA Fisheries has evaluated the reference operation in detail to determine the possible effect of this recommendation. In general, the reference operation was defined to try to provide maximum survival across *all* the listed ESUs throughout the year, i.e., a balanced annual operation for the ESUs. Thus, an attempt to provide higher chum flows in the reference operation would result in even deeper drafts of FCRPS storage reservoirs during the winter months, which would further affect the ability to refill Federal storage projects by June 30. The net effect of this would be to reduce spring and summer flows in the reference operation. To evaluate this effect, NOAA Fisheries and BPA staff carefully reviewed the hydrosystem modeling results of the current reference. Staff identified 10 years of concern (out of 50 years) in which one or more months during the November through March period showed flows that were significantly lower than the reference operation's 130 kcfs chum flow target. Staff then reviewed the refill status on June 30 of Hungry Horse, Libby and Grand Coulee storage projects in each of those years and the success of meeting spring (April-June) flow targets at McNary Dam. Staff found that in all 10 of the years of concern, both Libby and Hungry Horse failed to refill by June 30, while Grand

Coulee did refill. In addition, spring flow targets at McNary were not met in one or more months in all 10 of these years. NOAA Fisheries concluded from this analysis that if even deeper reservoir drafts were used to meet higher chum flow targets in the November-March period in those 10 years, there would be reduced spring flows at McNary Dam as the reservoirs reduced their outflow to recover the additional draft of winter water. Moreover, the reduced spring flow at McNary occurred in years when the flow targets were already not being fully met. Due to these carryover effects, NOAA Fisheries rejected the recommendation to include higher chum flow targets in the reference operation.

3.4.9
Comment:

- *When Hell's Canyon Complex was built, 25% of historical Snake River fall chinook habitat was already blocked; of the 460 miles that remained, HCC only blocked 210 miles. The BiOp makes it seem like the blockage is all attributable to the HCC. [48]*

Response: NOAA Fisheries has noted this comment and modified language in Section 4.3.2.1 of the Opinion to include additional detail.

3.4.10
Comment:

- *The BiOp says the HCC negatively affects downstream water temperatures, when it actually improves them. [48]*

Response: The operations of the HCC are outside the action area and therefore have not been considered as part of the environmental baseline or cumulative effects analysis for this consultation. However, the water quality and quantity entering the action area has been considered. Nevertheless, NOAA Fisheries provides the following explanation in response to this comment. Based on the available information, NOAA Fisheries disagrees with this comment. The development of the Hells Canyon Complex (HCC) has altered the seasonal patterns of water temperature, i.e., the annual winter minimum and late summer maximum temperatures now occur several weeks later in the year below HCC (Water Quality Team 2003). The time delay may be increased in years with low spring runoff. The timing of peak (high and low) water temperatures has important effects on aquatic life. For SR fall chinook salmon, these may include higher pre-spawning mortality, lower vitality of spawners, and reduced resiliency of the eggs. For example, chinook spawning is inhibited by water temperatures exceeding 16° C and delay in spawn timing results in the incubation period occurring in the cold waters of early winter through spring. This in turn, results in protracted incubation so that juveniles are delayed in their downstream migration until the period when they are subjected to reduced flows, higher temperatures, and clearer water. These smolts are smaller at the time of migration and are more vulnerable to predators. Juvenile migration at smaller sizes has been linked to lower survival rates for migrating smolts.

3.4.11
Comment:

- *The BiOp points out that John Day habitat has been more degraded than Snake River habitat, but John Day stocks are not listed and SR stocks are, which proves that FCRPS is a major mortality source. [17]*

Response: The comment appears to suggest NOAA Fisheries has failed to view the FCRPS as a source of mortality. That is not so. The BiOp identifies the FCRPS as a variable source of mortality for listed ESUs that navigate through the system. Listed ESUs are present in both the Snake River and John Day basins.

3.4.12
Comment:

- *Section 6.2.2.2.5 should state: USBR has provided flow augmentation from the Upper Snake River Projects, pursuant to a separate biological opinion, within available supplies, pursuant to state law, and from willing sellers, and it has been doing so since at least 1991. [34]*

Response: The table of flow augmentation volumes from the USBR Upper Snake River projects has been removed from section 6.2.2.2.5 of the Opinion, because those USBR projects are outside the action area and are the subject of a separate, ongoing Section 7 consultation process.

3.4.13
Comment:

- *The BiOp errs in saying IDFG chemical treatments at Stanley, Pettit, and Yellow Belly lakes affected Alturas and Redfish Lake sockeye populations. [17]*

Response: Based on very low levels of adult sockeye returns to Stanley, Pettit, and Yellow Belly lakes, IDFG made the decision to develop these lakes for resident species sport fisheries. It should be noted that Alturas and Redfish lakes were not chemically treated (only Yellow Belly, Pettit, and Stanley lakes were treated). Therefore, IDFG actions had no impact on Alturas and Redfish lake sockeye populations. NOAA Fisheries agrees with this statement and has used IDFG's recommendation to edit the appropriate section in the BiOp.

3.4.14
Comment:

- *Tribal catch should be part of the baseline because it has undergone Section 7(a)(2) consultation. [17]*

Response: The Tribes' fisheries are included as part of the baseline, as described in Section 5.2.9.

3.4.15
Comment:

- *The baseline should include all harvest authorized in US v. Oregon, including tributary harvest. [17, 49]*

Response: For the purpose of projecting the environmental baseline into the future, the Tribal treaty right must be included in the environmental baseline (Section 5.3.6). In terms of the analysis in the Opinion, it does not matter whether the Tribes harvest all of the harvest available to them or, as has been the practice, allocate a portion of that harvest to the states. Accordingly, in order to estimate the extent of the baseline harvest, NOAA Fisheries assumed that treaty and non-treaty harvest rates (derived from Tribal rights) comparable to the current harvest rates will continue into the future pursuant to these Court-approved settlement agreements. State-managed recreational fisheries (tributary harvest) were considered as cumulative effects (Section 7.0).

3.4.16
Comment:
- *Projected future harvest is not governed by a completed BiOp [6]*

Response: The status of mainstem fisheries relative to the baseline and cumulative effects is discussed in the Opinion in Appendix C and Sections 5.2.9 and 7.3.6.

3.4.17
Comments:
- *It is not possible to determine total river mouth harvest rates on A- and B-run fish. [49]*
- *It is not possible to determine ESU-specific harvest rates for steelhead. [49]*

Response: Although there are some difficulties associated with estimating A-run and B-run harvest rates, fishery management and harvest rate limits are set with these limitations in mind in order to provide objective criteria for management.

3.4.18
Comment:
- *The baseline needs to reflect the fact that further reductions violate tribal treaties. [16, 42]*

Response: The Environmental Baseline includes Tribal harvest, and the Opinion does not consider reductions from the current Tribal harvest levels.

3.4.19
Comment:
- *The BiOp must clarify that it is not possible to project future allocations, because future agreements may differ from past agreements. [49]*

Response: The clarification is provided in the Opinion in Section 5.3.6.

3.4.20
Comment:
- *Current over-harvest rates should not be allowed. [29, 37]*

Response: Harvest is not the subject of this consultation. Here, NOAA Fisheries must assume a level of take that is already authorized in an ESA consultation or, in the case of Tribal harvest, that is already part of the environmental baseline. In describing the environmental baseline,

NOAA Fisheries is not "allowing" any level of harvest. Rather, NOAA Fisheries is setting forth a point of reference to judge the effects of the FCRPS UPA.

3.4.21
Comment:
- *The harvest rate for SR fall chinook is 50% -- far above the small benefit afforded by the costly drafting of Montana reservoirs. [17]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA. Although it would be possible to offset the effects of the FCRPS by further reducing impacts in the harvest sector, there are no actions in the UPA to do so. The Action Agencies have no authority to do so directly; their ability to impact this factor is limited to their ability to influence fishermen such as by compensating them to voluntarily forgo fishing opportunities or modify their practices.

3.5 THE REFERENCE OPERATION

3.5.1
Comment:
- *The reference operation is defined differently in the BiOp ('the least amount of adverse effect on the fish that can be achieved associated with the hydro portion of the environmental baseline) and the UPA ("estimated survival potential of the hydro system free of other operational requirements for which the dams were authorized, including flood control, irrigation, navigation, and power generation"). The definition should be the same in both documents. [32]*

Response: For information about how the reference operation is defined, see Section 5.2.1 in the Opinion for a general description and Appendix D for additional detail.

3.5.2
Comments:
- *Flood control and irrigation should be counted in the baseline. [6, 31, 41]*
- *The analysis should further explore the limits of BPA's obligation to provide power generation. [9]*
- *The Action Agencies have more discretion than baseline indicates. [17, 32, 33, 53]*
- *NOAA and the Action Agencies all have more discretionary authority than the BiOp admits. They could ask Congress to alter or remove FCRPS projects. [33, 49]*
- *The analysis should be more detailed about what discretion the Action Agencies have. [16]*
- *The reference operation overstates the FCRPS' ESA obligations because it does not recognize the non-discretionary aspects of FCRPS operations, such as power generation, irrigation, and flood control. [41]*

Response: Although a jeopardy analysis calls for distinguishing the effects of the existence and non-discretionary operations of the FCRPS dams from the effects of the proposed action, it is beyond the technical ability of NOAA Fisheries and the Action Agencies to do so with analytic precision for the FCRPS dams and USBR projects. This is due in large part to the fact that

mainstem Snake and Columbia River dams are structures in a river through which both water and fish must pass each year. It is analytically impossible for NOAA Fisheries to assess the projects' environmental baseline effects without assuming some sort of operation for the environmental baseline. Ideally, this environmental baseline operation would meet all of the Action Agencies' non-discretionary obligations. However, a major difficulty with characterizing a non-discretionary operation is that it varies dynamically as a function of the available natural water supply. There may also be numerous operational ways to achieve the non-discretionary objectives. Therefore, for purposes of this consultation, NOAA Fisheries, with the assistance of the Action Agencies, developed a "reference operation" that serves as an operational surrogate for the hydro portion of the environmental baseline. This reference operation does not include flood control, power, or some USBR irrigation operations to the extent they interfere with operation of the FCRPS structures in a manner beneficial to fish. For USBR irrigation projects, the reference operation was defined consistent with Appendix B of the Action Agencies' November 2004 UPA, which assumes the mainstem flow effects due to Federal irrigation diversions of the Yakima, Okanogan, Montana, and Dalton Garden projects are non-discretionary and therefore not considered an effect of the UPA. See also Section 6.2.1.1.1 of the Opinion.

The reference operation is a theoretical operation that the Action Agencies cannot implement, because it fails to meet all the authorized purposes of the projects. However, its development allowed the consultation to move forward without having to go through the process of trying to precisely determine the extent of the Action Agencies' discretionary and non-discretionary operations and had the advantage of being conservative in favor of fish.

NOAA Fisheries recognizes that the reference analysis is conservative, in keeping with the precautionary principle, and that it errs on the side of overestimating the effects of the FCRPS operations. This is because some indefinite portion of the FCRPS operation is non-discretionary, and this should be part of the environmental baseline. This approach is in keeping with the Action Agencies' obligation to ensure that their actions are not likely to jeopardize the continued existence of the listed species or result in the destruction or adverse modification of designated critical habitat. See § 7(a)(2).

3.5.3
Comments:

- *NOAA Fisheries should consider evaluating spill to 125%. [32, 49]*
- *Reference operation flows (and spills) are limited to current waiver standards. What if they were increased? What if the dams were removed? [8, 49, 53]*

Response: NOAA Fisheries does not concur with this recommendation for the following reasons. Appendix E of the 2000 FCRPS Biological Opinion provided a spill risk assessment that showed that voluntary fish spill to a tailrace level of 120% TDG, or to a 115% forebay level at the next downstream dam, was not unduly harmful to salmon. Even at a low level of gas supersaturation, e.g., 110% TDG, some signs of gas bubble trauma (GBT) will develop if fish exposure to that level of gas is long enough or their depth is shallow, i.e., less than one meter. Biological monitoring for signs of GBT in juvenile and adult salmon migrants has been pursued for the past nine years. The monitoring results have shown the incidence of GBT is low if the TDG levels

can be managed at or below 120%. A component of this outcome is likely due to depth compensation. Above the 120% TDG level, GBT signs and their severity increase. If TDG levels range between 125-130%, the incidence of more severe signs increases dramatically, as it does in high runoff conditions with large amounts of involuntary spill.

Based on this extensive background of biological monitoring information, and in recognition of total maximum daily load limits for the mainstem Columbia and Snake rivers set by the states of Oregon and Washington and the USEPA, NOAA Fisheries continues to provide voluntary spill for fish passage up to the 120% tailrace and 115% forebay gas cap limits in the reference operation. NOAA Fisheries finds that these TDG levels are safe for both juvenile and adult salmonids. Additional spills resulting in TDG levels above these limits will cross a threshold at which the risks of GBT-related signs and mortality will exceed the improvement in fish passage. Lacking the ability to identify a safe TDG limit between 120% and 125% with an allowance for depth compensation, and because of variations in TDG measurements resulting from spill management at FCRPS hydropower projects, NOAA Fisheries believes that a change in the current gas cap limits for voluntary fish spill in the reference operation is not prudent at this time. See Section 5.2.1 of the Opinion for additional discussion.

3.5.4
Comment:

- *Predation is expressed in actual numbers, but dam passage mortality is expressed in percentages. Total mortality is therefore underestimated, so the reference operation is modeled on inaccurate numbers. [5]*

Response: NOAA Fisheries addressed this comment in Section 1.2.2 in Appendix D of the Opinion.

3.5.5
Comment:

- *The reference operation should include 24-hour spill, as recent data suggest benefits have been underestimated. [8, 9, 33, 49]*

Response: The reference operation includes 24-hour spill operations at all mainstem FCRPS projects during the spring migration, except at the three transportation collector projects in the lowest 15% of water years and after May 1 when seasonal average Snake River flows are between 70 kcfs and 85 kcfs. During the summer migration, 24-hour spill operations are provided at the four non-collector projects. See Sections 5.2.1.1.1.1 and 5.2.1.1.2 in the Opinion for more detailed discussions of voluntary spill for fish passage and how fish transport in the reference operation affects spill at the collector projects, respectively. Appendix D provides specific details of the reference operation spring and summer spill programs in Tables D.3 and D.5, respectively.

3.5.6
Comment:

- *The reference operation should include a "spread-the-risk" approach instead of all-transport for SR fall chinook juveniles. [8, 17, 27, 32, 33, 42, 49, 53]*

Response: NOAA Fisheries addressed this issue in the text of the Opinion in Section 5.2.1.1.2

3.5.7

Comments:

- *NOAA Fisheries should have compared the proposed operation to a reference operation that included drawdown of other reservoirs, higher flow targets for chum spawning, higher spill volumes, testing/implementation of RSWs, and modified Dworshak operation (even though "the true gap" would be the difference between current operations and free-flowing or natural conditions). [8, 32, 42, 49]*
- *Inconsistencies between the baseline reference operation and the UPA operation do not represent the best available scientific information. ("The reference operation was artificially limited in its scope to generate a smaller gap or lowering of the survival bar. The UPA then was artificially inflated to produce a higher level of survival than it will actually produce to close the survival gap.") [32, 33, 39, 42, 45, 49]*
- *The John Day Dam should be operated at natural spillway crest. [53]*
- *The reference operation did not use Dworshak water into September, even though that is in the baseline. Why the deviation from current management implementation? [17]*

Response: For purposes of this consultation, NOAA Fisheries must determine which effects of FCRPS operations on the listed species and critical habitat are attributable to the existence rather than the proposed operations of the dams. NOAA Fisheries, with the assistance of the Action Agencies, developed a "reference operation" that serves as an operational surrogate for the hydro portion of the environmental baseline. The reference operation theoretically helps determine the least amount of adverse effect on all listed fish that can be achieved given the existing configuration of dams and reservoirs. NOAA Fisheries used this theoretical reference operation to estimate the fish survival associated with the hydro portion of the environmental baseline. This reference level of survival was then compared to the fish survival level associated with the hydro portion of the proposed action to estimate the hydro effect. In developing the reference operation, NOAA Fisheries adjusted the operational parameters for FCRPS projects to maximize fish survival for all ESUs based on the best science available and guided by NOAA Fisheries' juvenile fish passage strategy, which is outlined in section 5.2.3.1.4. Responses to various specific recommendations to alter the reference operation are shown below.

- Drawdown mainstem reservoirs to spillway crest elevation: NOAA Fisheries included operation of all eight mainstem FCRPS reservoirs at minimum operating pool levels in its reference operation, because it is within the normal operating limits for each project. NOAA did not include deeper drawdowns to spillway crest elevation (or deeper), because adult fishways at the dams would be inoperable under an operation at spillway crest elevation, thus blocking upstream fish passage.
- Drafting of upper Columbia and/or upper Snake basin Federal storage projects: NOAA Fisheries did not include drafting of upper Columbia Federal projects to empty due to concerns about meeting minimum flows for bull trout below these projects and refill for subsequent year operations. See response to 3.4.10. Upper Snake basin storage projects were not included because these projects are outside the action area of this Opinion (see Section 5.1.1). Moreover, the operation of the USBR's upper Snake basin projects is the subject of a separate Section 7 consultation.

- Higher flow targets for chum salmon: See response to comment 3.4.10.
- Higher spill volumes at mainstem dams: See response to comment 3.5.2 and also discussion of this issue in Section 5.2.1 of the Opinion.
- Testing/implementation of RSWs at additional projects: See discussion of this issue in Section 5.2.1 of the Opinion.
- Provide a modified Dworshak operation through Sept. 15: NOAA Fisheries concurs and the reference operation allows for cool water releases from Dworshak Reservoir to be provided during the summer months and through mid-September to provide temperature control and flow augmentation in the lower Snake River for juvenile SR fall chinook and upstream migration of listed adult salmon and steelhead.

3.5.8
Comment:

- *The reference operation does not include all fish-friendly options available, especially for SR fall chinook. [8, 14, 32, 49, 53]*

Response: This comment is addressed in the text of the Opinion in Section 5.2.1.

3.5.9
Comment:

- *Actual spring flows were higher in 8 of the past 10 years than flows in the reference operation or the UPA, so the reference operation is not likely to represent improved system survival. [32]*

Response: Among the measures adopted in the reference operation was the removal of summer draft limits at the major FCRPS storage reservoirs (Grand Coulee, Dworshak, Albeni Falls, Libby, and Hungry Horse). This has the effect of increasing the summer flows at the expense of creating a larger total draft of the reservoirs. Then, in an attempt to achieve refill, the next spring's flows are captured in the reservoirs to a greater extent than they are under current operations, which include specified summer draft limits. Because it is generally easier to achieve the spring flow objectives than the summer flow objectives, NOAA Fisheries believes this emphasis on achieving the summer flow objectives is appropriate.

3.5.10
Comment:

- *BIT should be initiated now and added to reference operation. [49]*

Response: NOAA Fisheries did not include turbine survival benefits in the reference operation because the biological index testing has yet to be completed at any dam, and therefore, there are no results that could be implemented immediately. However, expected survival improvements due to the biological index testing were assumed in both the 2010 and 2014 gap analyses. The same data inputs were used to evaluate each operation.

3.5.11
Comment:

- *The UPA cannot be compared with the reference operation, because each is built on different inputs. [49]*

Response: The proposed action operation and system configuration changes were defined by the Action Agencies in their UPA, while the reference operation was developed and defined by NOAA Fisheries in Section 5.2.1 and Appendix D of the Opinion for the purpose of defining an environmental baseline condition for the FCRPS against which the effects of the proposed action operation can be compared.

3.5.12
Comment:

- *Nowhere is there an assessment of what would happen if no action is taken (no metrics for jeopardy standard). [49].*

Response: This is the purpose of the reference operation which attempts to evaluate the environmental baseline conditions to which the effects of the proposed action will be added. See Responses to Reference Operation comments, above.

3.5.13
Comment:

- *Standards for "certainty to occur" need to be revisited, because they are still not consistent, e.g., RSWs at Little Goose and Lower Monumental have been flagged for funding but are not included in the reference operation, but the UPA includes spillway weirs at McNary although not even feasibility studies have not been funded. [9, 17]*

Response: This comment is addressed in the Opinion in Section 5.2.1.

3.5.14
Comments:

- *Benefits from the Dalles sluiceway modification could be achieved simply by using it at full capacity instead of less than 2500 cfs (the norm). [49]*
- *Augmenting spring flows is too expensive. [44]*
- *Spring and summer spill are too expensive. [29, 44]*
- *Draft limits for Libby and Hungry Horse should be at 10 feet through the end of August instead of at 20 ft, since the extra 10 feet provide minimal benefit. [38]*

Response: The Action Agencies alone have the discretion to propose an action. As long as the proposed action is not likely to jeopardize the listed ESUs, NOAA Fisheries is not in the position of recommending actions, as it would be in a case where actions jeopardize such that NOAA Fisheries must recommend a Reasonable and Prudent Alternative. The Action Agencies need not propose the “best” action, merely one that avoids jeopardy and destruction or adverse modification of critical habitat.

3.5.15
Comment:

- *Studies are needed to estimate smolt-to-adults survival rates for SR fall chinook. [8, 49]*

Response: NOAA Fisheries concurs with this comment and notes it is part of the UPA.

3.5.16
Comment:

- *BiOp fails to compare differences in survival due to water temperatures in the reference operation and the UPA. [49]*

Response: One of the major factors affecting water temperature is the river flow rate. For example, slower flows as in the late summer months allow river waters to warm from solar input (Water Quality Team 2003). However, the flow rates between the reference and UPA cases were not significantly different. Therefore, the differences in survival due to a temperature stressor acting in concert with other factors were assumed to be the same.

3.5.17
Comment:

- *Irrigation and flood control, as authorized project purposes, are non-discretionary and were improperly eliminated from the reference operation. [31]*

Response: NOAA Fisheries requested that the Action Agencies define their respective discretionary and non-discretionary actions prior to conducting the analysis provided in the Opinion. The Corps was unable to segregate those aspects of flood control considered non-discretionary from those aspects considered discretionary. Similarly, the USBR was unable to segregate those aspects of its irrigation operations that are non-discretionary from those that are discretionary. For this reason, NOAA Fisheries assumed that all such operations not already covered under a separate biological opinion were discretionary and constructed the reference operation to exclude such operations to the extent they interfere with operating the FCRPS in a manner beneficial to listed fish.

3.5.18
Comment:

- *There is cause for concern with a NOAAF framework that uses a "one size fits all" approach suggesting that mitigative actions can be optimized and rationalized across all listed species. The result of the NOAAF approach is a reference operation that trades flows between spring and summer periods without benefit of life cycle model analysis, and the supporting rationale that "optimization" is occurring therefore may be compromised. The 2004 BiOp would be enhanced by an explanation why utilizing ESU targeted reference operations was rejected. [16, 17, 42]*

Response: NOAA Fisheries addressed this comment generally in Section 5.2.1, 5.2.1.1, and Appendix D of the Opinion. Moreover, any operation that provides additional water (and resulting spills at mainstem FCRPS dams) from Federal storage projects during a period of time for a particular ESU would necessarily reduce the amount of available flows (and spills) through

the FCRPS for other ESUs during other times of the year. That is, there is a finite volume of water available to be stored and utilized each year, and NOAA Fisheries defined a reference operation that allowed for a determination of the least amount of adverse effect to all listed salmon and steelhead species, e.g., one that balances FCRPS operations across all ESUs in the basin to maximize fish survival.

3.5.19
Comment:

- *The survival assigned to the spillway at Lower Granite Dam is questionable. In the 2000 biological opinion, the value was 0.98. Based on results from one Radio-Telemetry study, the value has been reassigned to 0.93. This change seems arbitrary and is not discussed in the document. [8, 49]*

Response: NOAA Fisheries agrees with this comment. Table D.20 in Appendix D of the Opinion was changed to reflect a value of 0.98 for spillway survival at Lower Granite Dam.

3.6 ESTIMATING THE GAP

3.6.1
Comments:

- *The BiOp fails to account for delayed or extra mortality. [8, 32, 49]*
- *NOAA Fisheries must account for latent mortality, even if it cancels out in the analysis, because otherwise it makes no sense to say D is the same in the UPA and the reference operation (they are two different actions). [17]*

Response: These issues were addressed in the text of the Opinion in Section 5.2.2.3.1.1

3.6.2
Comment:

- *The BiOp lumps predictions across all ESUs, even though FCRPS impacts ESUs differently. [49]*

Response: Actually, the survival gap analyses conducted for the current Opinion compare the relative survival differences for different ESUs between the Action Agencies' proposed hydro operation and system configuration changes and the reference operation and existing system configuration of the FCRPS. The relative survival differences for each listed ESU are presented in Tables 6.8, 6.9, and 6.10 and explained in Sections 6.3 through 6.14 for each ESU.

3.6.3
Comment:

- *The BiOp makes broad statements such as, "A minimal reduction in flow of 1.5% results in a minimal net effect on juvenile salmonid rearing habitat," even though losing 1.5% of high quality habitat is much different than losing the same amount of low quality habitat. [32]*

Response: NOAA Fisheries agrees with this statement. There are some limitations in our ability to quantify the specific amount of shallow-water habitat affected by the differences in discharges under the reference operation and the proposed action. In the current Opinion, NOAA Fisheries has attempted to address this question and consider the uncertainties associated with that effect (Section 6.2.1.1 - Flow).

3.6.4
Comment:

- *NOAA Fisheries fails to compare qualitative differences in water quality parameters between the UPA and the reference operation. [49]*

Response: The qualitative differences in water quality parameters between the UPA and the reference operation were not expected to be significant. This commenter specifically discussed water temperature. A major factor affecting water temperature is flow rate. The differences in flow rates between the reference operations and UPA were not significant. Therefore, the effect on water temperature or other water quality parameters was not expected to be large.

3.6.5
Comment:

- *Significant rates of adult fallback are not considered. [17, 49]*

Response: This comment is addressed in Section 6.2.2.2.3 of the current Opinion.

3.6.6
Comment:

- *All references to meeting flow objectives should make clear that flow objectives are not hard constraints but simply laudatory goals for system management and do not need to be met on a daily, weekly, or even seasonal basis (consistent with previous BiOps and Judge Marsh's ruling in the American Rivers case in 1997 re: implementation of the 1995 BiOp). [28, 34]*

Response: The Action Agencies are the authors of the UPA. Comments regarding the UPA should be directed to the Action Agencies. Throughout NOAA Fisheries' analysis of the Effects of the UPA, NOAA Fisheries has assumed that the actions available to achieve the flow objectives are fully defined by the UPA. NOAA Fisheries' use of the term "flow objective" has not changed from the 2000 Biological Opinion (see Section 9.6.1.2.2 of that opinion).

3.6.7
Comment:

- *Claims of increase in bypass survival are unsubstantiated, because the only way to do it is move the outfall (which isn't in the CRFM budget) or change operations to improve tailrace egress (which could be implemented immediately and should be in the reference operation, not the UPA). [49]*

Response: The Action Agencies' UPA includes relocation of several bypass system outfalls. These relocations, along with improved powerhouse operations, are expected to provide bypass survivals in the mid to upper 90% range, similar to survivals of the best existing bypass systems.

NOAA Fisheries anticipates that these systems will not all be available by 2010, so some were not included until 2014. NOAA Fisheries did not include similar survival benefits in the reference operation for improved powerhouse tailrace egress, since it has not been shown that operations alone could improve bypass survival under practical project operations.

3.6.8
Comments:

- *Kelt survival under no-spill conditions is very poor. BiOp underestimates the number of spring-outmigrating kelts and fails to compare survival between UPA and reference operation. [49]*
- *NOAA Fisheries admits kelts are unlikely to survive dam passage to spawn a second time but does not evaluate the effect on VSP parameters of this potential long-term interruption of a steelhead life cycle component. [16, 17]*

Response: NOAA Fisheries addressed this comment generally in Section 6.2.2.4 of the Opinion. The Opinion analyzes the effects of the hydropower system on juvenile and adult listed salmon. A life cycle analysis has not been conducted for the Opinion, so the effects of kelts on VSP parameters of steelhead populations have not been evaluated. Further, the effects of the hydropower system on kelt survival and reproductive success are poorly understood.

3.6.9
Comment:

- *In Section 5.2.2.3, Effects on Juvenile Salmon Passage Survival, the BiOp fails to address water quality as a limiting factor for salmon survival and restoration. [49]*

Response: Several commenting agencies discussed multiple water quality parameters as significant factors in juvenile salmon passage evaluation. In addition to temperature and total dissolved gas, other water quality factors mentioned included turbidity, sediments, pesticides, nutrient cycling, and land use practices related to agriculture municipalities, mining, mining, grazing, and forest practices. The biological effects of these water quality factors may include lethality, organism behavior, growth, migration, immunosuppression, fecundity, etc. Single water quality factors may affect listed stocks. However, it is more typical that multiple water quality factors are present and acting in concert additively or perhaps even synergistically. Although it would be desirable to address every source of lethal or sublethal stress on a stock of fish, it may not be possible. The basic information on how the stressor affects juvenile survival may not be available, or the quality of information in hand may not be adequate to the analysis. In the cases of multiple factors, the effects of a particular suite of stressors may not have been analyzed (NWPPC 2002). However, the major water quality factors, e.g., water temperature and total dissolved gas, were considered in the BiOp.

3.6.10
Comment:

- *The gap analysis is incorrect because it assumes stasis in the marine environment. Ocean conditions affecting juvenile salmonid survival change, e.g., the Pacific Decadal Oscillation and the differing values of smolt-to-adult return ratios corresponding to measured changes*

in the marine environment. NOAA Fisheries should incorporate a stochastic generator of ocean conditions to improve the survival estimate. [49]

Response: The gap analysis is not affected by ocean conditions, although the significance of any gap is influenced by the status of the ESU, which is affected by ocean conditions. NOAA Fisheries considered ocean conditions in Section 5.3.7 of the Opinion.

3.7 SIMPAS

3.7.1
Comment:
- *SIMPAS is not "the best available science." [49]*

Response: NOAA Fisheries believes the SIMPAS model is a reasonable way to assemble and interpret the best available science (fish passage and survival data) for the purposes required by the process used in this Opinion.

3.7.2
Comments:
- *Modelers should use the FLUSH model for future flow-survival relationships. [49]*
- *Modelers should use water particle travel time as a surrogate for a flow-survival relationship. [49]*
- *SIMPAS omits the connection between flow survival and flow travel time for SR fall chinook. [8, 17]*

Response: NOAA Fisheries agrees that there is likely a relationship between flow and travel time for juvenile SR fall chinook. This relationship was recognized in Williams *et al.* (2004). The SIMPAS analysis evaluated the effect of flow on survival for SR fall chinook by utilizing a flow-survival relationship. Details of how this relationship was derived and applied in the analysis are presented in Appendix D, Section 3.

3.7.3
Comments:
- *SIMPAS was designed to compare alternatives in a qualitative sense, not a relative sense. [49]*
- *SIMPAS is too simple to capture the complexities it is being used to quantify. [8, 14, 49]*
- *SIMPAS is not stochastic system-wide or life-cycle-wide and provides no measure of error or uncertainty surrounding its parameters. [32]*
- *The model needs a time-step component to capture the variability across the migration season. [49]*

Response: See Section 1.2.2 of Appendix D in the final Opinion for a discussion of these concerns.

3.7.4
Comment:
- *SIMPAS does not simulate historical stock performance. [8, 49]*

Response: The SIMPAS model, as used in the Opinion, is not intended as a life cycle model (as discussed in Appendix D, Section 1.2.2). It cannot be (and is not) used to predict stock performance in terms of adult returns. The model was set up in the retroactive analysis to equal the same annual empirical juvenile system survivals that were measured in the 1994 to 2003 study period. All deviations from this are based on NOAA Fisheries' best judgment of future expectations, which are, in turn, based on past performance (flow/survival relationships and passage and survival improvements observed at other dams or based on other past improvements).

3.7.5
Comment:
- *The flow-survival relationship was incorrectly determined. There's no such thing as 0 river flow, so the curve is artificially depressed. [37, 44]*

Response: This comment is addressed in Appendix D, Attachment 3 of the current Opinion.

3.7.6
Comment:
- *The model needs a time-step component to capture the variability across the migration season. [49]*

Response: This comment is addressed in Appendix D, Section 1.2.2.

3.7.7
Comment:
- *Point estimates imply data are precise, but there is high uncertainty around each input parameter. [49]*

Response: This comment is addressed in the Opinion in Appendix D, Section 1.2.2.

3.7.8
Comment:
- *Many inputs are based on numbers that showed no statistical difference when evaluated against a control. [49]*

Response: NOAA Fisheries addressed this comment in the Opinion in Section 1.2.2 of Appendix D. NOAA Fisheries used the best available data for model input fish passage and survival data. If several years of passage data were available, the average of those years was used. If only one year of data was available, NOAA Fisheries used the point estimate for test condition of the study.

3.7.9
Comment:
- *The improvement in FGE at Bonneville Powerhouse II is a best-case scenario. The average will be much lower. [49]*

Response: NOAA Fisheries acknowledges that the BON B2 FGE improvement in the October review draft was a best-case scenario. NOAA Fisheries cut that value in half for the 2010 gap analysis to account for delayed implementation of the FGE improvement devices but used the full value (as provided by the Corps) in the 2014 gap analysis. NOAA Fisheries believes this is a reasonable future (10 years out) FGE estimate.

3.7.10
Comment:
- *There are inexplicable variations between diels for the reference and UPA operations. [49]*

Response: NOAA Fisheries used the diel passage values from the 2000 FCRPS Biological Opinion in all cases. These diel rates were applied to operations where 12-hour spill occurs, or where 24-hour spill was judged insufficient to result in a flat 50/50 day/night passage condition. In all cases where significant levels of daytime spill occur, we used a flat 50/50 diel passage rate.

3.7.11
Comments:
- *Survival estimates too optimistic for low-flow conditions. [8, 49]*
- *In-river survival rates for SR fall chinook are significantly higher in the BiOp than the 7/1/04 NOAA Findings letter. [49]*

Response: Regarding the survival estimates being too optimistic for low flows, the base system juvenile survival estimates in SIMPAS were based on empirically derived data from years that included low, medium, and high flows. This included the very low flow years of 1994 and 2001. The multi-year average survivals used in the gap analysis are weighted more towards higher flow years, since there were more of these in the ten-year study period. This would be a concern if NOAA Fisheries were determining the achievement of performance standards based on one year, but this is not the case. The performance standards in the Opinion apply to the ten-year span of this consultation with mid-term check points. This ten-year span is expected to contain low, medium, and high flow years similar to the base case study period.

Regarding the SR fall chinook survival rates in the Findings Letter, the eight-year mean in-river survival for the 2004 proposed operation condition is 14.2% (with a range of survivals from about 8% to 22%) and is 4% higher than the 1995 to 1999 mean survival of SR fall chinook that was estimated in the 2000 FCRPS Biological Opinion and mentioned on page 8 of the Findings Letter. This difference could be the result of updating the 1995-1999 survival rates with more recent 2000, 2001, and 2003 survival data and improved in-river survivals due to passage improvements made since 1999.

3.7.12 Comments:

- *Additional studies are needed to validate input and output on survival rates for RSWs vs. spill. (Current data show spill is better). [49]*
- *Results for RSWs at Lower Granite Dam cannot be used to extrapolate for other projects, because migrant behavior changes the further the fish get downstream. [49]*
- *Benefits of RSW installations are speculative. [8, 27, 30, 49]*

Response: In response to these comments and concerns, NOAA Fisheries has included a term and condition in Section 10.5.2.1 of the Incidental Take Statement that calls on the Action Agencies to "evaluate juvenile project-specific passage survival both before and after configuration and/or operational modifications [at mainstem FCRPS projects] to ensure that these modifications result in improved passage survival."

3.7.13
Comment:

- *FGE used for The Dalles Dam underestimates the number of migrants that used the spillway. [49]*

Response: NOAA Fisheries agrees with this comment and updated the methods used to estimate both the spillway and the sluiceway guidance efficiencies as a result. The proportion of fish that now passes the spillway is the same as observed in the studies. This general improvement is mentioned in Appendix D, Section 1.2.2.

3.7.14
Comment:

- *The model shows a near-term reduction that will reduce fisheries and cause economic harm. [30]*

Response: Although economic effect is not a statutory factor for an ESA § 7(a)(2) analysis, NOAA Fisheries would not expect the UPA effects, which NOAA Fisheries finds are not likely to jeopardize the affected ESUs, to result in significant reductions in ESU populations in the near term.

3.7.15
Comment:

- *The BiOp does not address the fact that the Corps and BPA are evaluating new turbines for McNary Dam. [49]*

Response: The Action Agencies' UPA includes the powerhouse turbine modernization program at McNary Dam, which will be implemented by 2014, and this program is included in the Opinion's analysis of effects.

3.7.16
Comment:

- *The BiOp does not make reference to the Plan for Analyzing and Testing Hypotheses or the literature on D that it cites. [17, 33, 49]*

Response: This issue was addressed in the text of the Opinion in Section 5.2.2.3.1.1

3.7.17
Comment:
- *Williams et al. underestimates D. [17, 49]*

Response: This issue is addressed in the text of the Opinion in Section 5.2.2.3.1.1

3.7.18
Comment:
- *Turbine survival improvements are highly uncertain. [8, 44, 49]*

Response: This comment is addressed in the text of the Opinion in Section 6.3.1.2.2.

3.7.19
Comment:
- *Benefits of the forebay device at The Dalles Dam are uncertain. [49]*

Response: NOAA Fisheries acknowledges this comment and assumed only a 1% spillway survival improvement for implementation of The Dalles Dam forebay guidance device.

3.7.20
Comment:
- *There is no statistical difference in survival between minimum gap runners and standard turbines, so it's unclear why the BiOp assumes improvements (especially 13% at John Day for SR falls). [49]*

Response: NOAA Fisheries addressed this comment in Section 6.4.1.2.2 of the Opinion.

3.7.21
Comment:
- *The link between adult survival and latent mortality due to the hydrosystem is not addressed for in-river migrants (D is estimated at approx. 80% for SR spring/summers.). [8, 17, 33]*

Response: NOAA Fisheries has addressed this comment by including a discussion of latent mortality of in-river migrants in Section 5.2.2.3 of the Opinion and in Appendix D, Attachment 5.

3.7.22
Comment:
- *Proposed configuration modifications, such as RSWs, which are funded by fish mitigation dollars (Corps' CRFMP), will result in reduced operational costs (i.e., reduced spill) but not necessarily improve passage survival. Due to the fact that only one RSW site has been tested to date, and with only two species, it is highly uncertain and speculative that RSWs at other sites, and with other fish, will perform as well. [8, 17, 27, 30, 32, 49]*

Response: To address these concerns, NOAA Fisheries adopted ITS language (see item #3 in Section 10.5.2.1) that the Action Agencies shall evaluate juvenile project-specific passage survival both before and after configuration modifications to ensure that these modifications, which may include voluntary spill reductions, will result in improved passage survival compared with the proposed 2004 operation.

3.8 CLOSING THE GAP – GENERAL

3.8.1
Comment:

- *Actions completed under the RPA in the 2000 BiOp have already occurred and can't be counted as part of the action that fills the gap (e.g., sockeye SNAPP and Expanded Northern Pike Minnow programs). [27, 49]*

Response: NOAA Fisheries considers actions to implement the 2000 RPA, if they have been completed, to be past actions that should be part of the environmental baseline. On the other hand, some actions that were initiated under the 2000 RPA are ongoing under the UPA, reflecting a renewed commitment to provide funding and oversight for these measures. The benefits of these actions are appropriately not in the environmental baseline, and their ongoing and future effects are attributable to the UPA.

3.8.2
Comment:

- *Even assuming the non-hydro measures afford the level of benefits specified, they don't fill the gap for SR fall chinook, UCR spring-summer chinook, LCR chinook, UCR steelhead, or MCR steelhead. [16, 27, 32, 33, 45]*

Response: While it is correct that NOAA Fisheries found that the implementation of the non-hydro measures would not entirely fill the gap during the short-term period for several ESUs (SR spring/summer chinook, SR fall chinook, UCR spring chinook, LCR chinook, UCR steelhead, MCR steelhead, CR chum, and SR sockeye), this does not necessarily mean that the un-mitigated adverse hydro effects cause jeopardy. The purpose of the Opinion is to apply the standards and procedural requirements of ESA §7(a)(2) as they are interpreted by the agency's consultation regulations, 50 C.F.R. Part 402. The statutory directive that the proposed action be not likely to "jeopardize the continued existence" is interpreted in the regulations as an action that "reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers or distribution of that species." NOAA Fisheries must therefore first consider whether the net adverse effect would reduce the reproduction, numbers, or distribution of the species. If that is NOAA Fisheries' determination, NOAA Fisheries must then consider whether that reduction would constitute an appreciable reduction in the likelihood of both survival and recovery. This decision depends upon the magnitude of the reduction, the distribution of that reduction among component populations and major population groups within an ESU, the risk experienced by the ESU, both over its range and within the action area, and the amount of

uncertainty presented by the data and scientific analysis available. There is nothing in the evident statutory intent, as interpreted by the regulation, to mandate that an action have no effect.

In analyzing the ESUs in question, NOAA Fisheries did find a short term reduction in survival as compared to the reference operation. However, in every instance, those short term reductions were eliminated prior to 2014. Given the fact that recent high returns protect the ESUs against any immediate risk of extinction, NOAA Fisheries concluded that the short term reductions would not reduce appreciable the likelihood of survival and recovery of the ESU.

3.8.3
Comment:

- *Negative effects are certain, but mitigation benefits are uncertain and speculative. The Action Agencies cannot assure the region that any real, demonstrable benefits will result from these proposed actions. [17, 49, 53]*

Response: The BiOp considers the uncertain nature of the benefits of offsetting actions in its analysis, the inclusion of performance standards and research, and monitoring and evaluation elements.

3.8.4
Comment:

- *The BiOp does not explain how survival changes would be expected to affect population performance over an entire life cycle. [16, 32]*

Response: NOAA Fisheries' approach involved approximating the effect of the proposed hydro action as the difference between the effects of the proposed action and the "reference operation" that was described in Section 5.0. Then NOAA Fisheries quantitatively evaluated the effects of actions proposed to reduce or minimize those effects or to mitigate for them through non-hydro actions designed to improve habitat conditions and survival. Since survival outside of the action area is not affected by any difference between the reference operation and the UPA, there is no use for lifecycle modeling in evaluating the effect of the action.

3.8.5
Comments:

- *The basis for qualitative assessments is neither clear nor consistent. [14, 17, 42, 49]*
- *The analyses of the potential effects of habitat improvements are qualitative assessments that are poorly constructed and poorly documented.* [32]
- *In general, qualitative assessment for habitat seems an appropriate approach principally because there is scant quantitative data that demonstrate increased egg-to-smolt survival rates from habitat improvement. [17]*

Response: NOAA Fisheries believes that it has clearly articulated the basis for its qualitative assessments throughout the Opinion and its appendices. See, in particular, Section 6.1.2 and Appendix E.

3.8.6
Comment:

- *Eliminating the 50% harvest rate for fall chinook would greatly exceed filling the gap. [6]*

Response: NOAA Fisheries acknowledges that a reduction in harvest rates could help fill the gap. However, harvest is not within the discretion of the Action Agencies to control. NOAA Fisheries consulted on the action as proposed in the UPA and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.8.7
Comment:

- *Recommended actions are either not certain to occur, have already been started or done under US v. Oregon, or are not significantly different from the status quo. [9, 49, 53]*

Response: The Action Agencies are proposing to continue artificial propagation programs funded through the Northwest Power and Conservation Council. NOAA Fisheries acknowledges that these ongoing actions are not significantly different from those addressed in US v Oregon agreements. NOAA Fisheries judged these ongoing actions as providing very little credit for filling the survival gap, as the Action Agencies had some discretion on whether to continue their funding. The Action Agencies also proposed two new artificial propagation actions that included development of a 150,000 Snake River Sockeye Salmon yearling smolt program and improving the adult trap at Lower Granite Dam to improve the Snake River fall chinook salmon hatchery program. NOAA Fisheries has committed to working with the state and Tribal Comanagers in US v Oregon on the implementation of these new actions and assumed that they would be implemented as proposed in the analysis of effects.

3.9 CLOSING THE GAP – HYDRO

3.9.1
Comment:

- *Differences in modeling parameters are mostly small, but there are so many, "it takes very little tweaking of the numbers to close the gap." [49]*

Response: NOAA Fisheries addressed this comment in Section 1.2.2 in Appendix D of the Opinion.

3.9.2
Comment:

- *RSWs are too expensive. Use something cheaper (spill is not cheaper), or use RSWs and nothing else. [44]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA

Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.9.3

Comment:

- *BPA should set aside an area near Bonneville Dam to collect B-run steelhead for transport past McNary Dam. [53]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.9.4

Comment:

- *Impacts from FCRPS should be addressed directly -- estuary improvements won't matter if the fish don't live long enough to reach them. [42, 53]*

Response: The comment suggests that a change in survival through the FCRPS cannot be offset by a change in survival through the estuary. As discussed in Section 6.1.2, if the negative hydro effects are expressed as proportional changes in hydro survival and the estuary actions are expected to result in an equivalent positive proportional change in estuary survival, then the overall hydro + estuary survival rate will remain unchanged. It is true that there are limits to the reduction in hydro survival that can be offset with proportional changes in another life stage. For instance, if the proposed action were to cause a proportional 50% reduction in survival, it may not be biologically feasible to double survival in another life stage to balance that hydro effect. However, for the proportional hydro survival changes associated with the proposed action, NOAA Fisheries determined that various combinations of offsetting actions could balance the hydro effects by 2010. (See Sections 6.3 - 6.15 of the Opinion.)

3.9.5

Comment:

- *The Action Agencies should be required to install additional attraction flows at FCRPS fishways. [49]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.9.6

Comment:

- *How did the Corps "focus turbine survival improvements" at John Day such that survival improved by 13%? [17]*

Response: The Corps has committed through its Turbine Survival Program to focus the elements of biological index testing on John Day Dam. This testing protocol is currently under development, but it will include biological testing for best turbine operating point and best overall powerhouse operations for improved tailrace egress. NOAA Fisheries assumed a 3% and 9% turbine survival improvement for spring and summer migrants, respectively. These survival estimates are higher than those for other dams, because the current turbine survival estimates at John Day are significantly lower than the other FCRPS dams. NOAA Fisheries believes that it is reasonable to assume that turbine survival at John Day Dam could be improved to a level more comparable to other dams.

3.9.7

Comment:

- *The Corps priority to install RSWs has left many critical maintenance projects unfunded. [49]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.9.8

Comment:

- *Water temperature control systems at GCL should be used in conjunction with flood control operations to reduce TDG in the mid-Columbia River. [49]*

Response: The use of deep waters from reservoirs cooling the downstream river relies on thermal stratification in the reservoir and the development of a large source of cool waters. The USBR investigated the concept in 2003. The feasibility and practicality of Lake Roosevelt and Grand Coulee operations or structural modifications resulting in significant temperature improvement through the mid-Columbia and lower Columbia River is limited. Due to the travel time of water through Lake Roosevelt (20 to 45 days), stratification and cool water volumes are limited. In some water years, the reservoir develops little water storage with a temperature less than 16° C, the maximum daily temperature criterion.

There are three means of releasing waters from Grand Coulee. Water can be routed through the power houses or spilled through lower level outlet tubes in the dam or over the drum gates at the top of the dam. Spill over the drum gates can be managed to avoid major total dissolved gas supersaturation. However, spill through the lower level outlets represents a significant TDG penalty, which is reason to limit use of these outlets, even to release deeper reservoir waters for mainstem cooling purposes.

3.9.9

Comment:

- *The system-wide flood control study proposed in the UPA was insufficiently detailed to ensure that the proposed action would provide benefits similar to 2000 BiOp RPA Action Item 35. [49]*

Response: NOAA Fisheries agrees that at the draft stage the UPA was not fully detailed. The final UPA better describes the proposed flood control study, and NOAA Fisheries is satisfied that this study will provide similar benefits to RPA Action Item 35.

3.9.10
Comment:
- *The use of seasonal average discharge masks the potential benefits of flow on survival. [8]*

Response: The Northwest Fisheries Science Center routinely calculates flow/survival relationships using seasonal average flows. These are the data used to create the SIMPAS model NOAA Fisheries has used to calculate the survival gap. Thus, seasonal average flows were the appropriate parameter to use in this analysis. As understanding of the variation in the flow/survival relationship throughout the emigration season improves, NOAA Fisheries may be able to calculate survival over shorter timeframes and better define operations that would improve fish survival. Such improved knowledge would be used to guide Regional Forum processes, especially the Technical Management Team.

3.10 CLOSING THE GAP – PREDATION

3.10.1
Comment:
- *The analysis assumes predation effects are additive (other predators could easily fill the void left by pikeminnow removal.) [8, 27, 42, 49]*

Response: The benefits of offsite actions are intended to help mitigate for hydro operation mortality. They are not intended to be the sole and in no case the most significant mitigation. NOAA Fisheries recognizes that predator reduction program benefits, although real, cannot be precisely estimated. NOAA Fisheries has included a sensitivity analysis evaluating the efficacy of a range of benefits from Caspian tern relocation in helping to mitigate for hydro operation mortality.

3.10.2
Comment:
- *Dealing with East Sand Island should be mitigation for dredging, not FCRPS. [9, 17, 49]*

Response: The Corps relocated terns from Rice Island as partial mitigation under the September 15, 1999, Columbia River Navigation Channel Operation and Maintenance Program biological opinion. The Action Agencies are now proposing additional improvements to listed salmonids by relocating terns from East Sand Island.

3.10.3
Comment:
- *If the predation proposal was rejected as compensation for spill, why would it compensate for FCRPS operation? It should be in the baseline. [8]*

Response: The Action Agencies concluded that the proposed predation programs were within their authorities and incorporated them into the Updated Proposed Action. NOAA Fisheries must evaluate the effect of the predation action for § 7(a)(2) purposes in combination with all other parts of the action, not in isolation as an offset for another measure analyzed in isolation. In the context of the 2000 FCRPS BiOp implementation, at issue in the summer of 2004, the question was whether predation reductions were a new offset not already considered part of the RPA and therefore available for consideration as an offset for reduced summer spill. NOAA determined that predation reductions were already part of the 2000 RPA and therefore not new. The UPA proposes the continuation and enhancement of the 2000 predation reduction program and therefore it is not in the environmental baseline. Similarly it is not part of the operation of the FCRPS structures and so it should not be included in the reference operation.

3.10.4
Comment:

- *If walleye cause one-third of all predation, why is there no walleye predation control measure? [9]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.10.5
Comment:

- *Pikeminnow populations have already been reduced, but FCRPS creates conditions that support increasing pops of walleye and smallmouth bass. [49]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.10.6
Comment:

- *Most of the pikeminnow predation occurs in the BRZs, where fishing isn't allowed. [49]*

Response: Research by Rieman *et al.* (1991) indicates only 20-25% of Northern Pikeminnow predation on salmon occurs in the boat restricted zone (BRZ). Furthermore, a Northern Pikeminnow fishery that targets the body of the reservoir also removes BRZ fish, since these predators swim freely from one area of the reservoir to another.

3.10.7
Comment:

- *The BiOp should identify specific provisions for reduction of pinniped predation for potential reauthorization of the Marine Mammal Protection Act. [49]*

Response: This comment is addressed in Section 6.2.2.2.1 of the Opinion.

3.10.8
Comment:

- *The BiOp should account for the presence of invasive American shad, which provide an abundance of food that attracts other predators. [13]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to the UPA scope when they issue their records of decision.

3.10.9
Comment:

- *A 10-20% exploitation rate for Northern pikeminnow "may result in up to 50% reduction in smolts consumed," not "will obtain a 50% reduction" (Section 5.2.5.2). [32]*

Response: NOAA Fisheries concurs with this comment and modified Section 5.3.1.2 of the Opinion to say "to obtain up to a 50% reduction."

3.10.10
Comment:

- *Variability associated with estimates of exploitation rates, consumption rates, changes in size structure, and estimates of relative predation likely preclude statistical differences between current and proposed actions. At best, benefits will not occur for years. [32]*

Response: NOAA Fisheries concurs with this comment and included this concern in Sections 5.3.1.2 and 6.3.2.4 of the Opinion.

3.10.11
Comment:

- *Studies are needed to assure that terns aren't keying in on stressed migrants that would have died anyway. [17]*

Response: NOAA Fisheries acknowledges that tern predation may not be 100% additive. However, best available science does not suggest a point or range estimate to apply in determining anticipated benefit from reduced tern predation. NOAA Fisheries evaluated the robustness of the estimated benefits by considering three scenarios of compensatory mortality in the current Opinion (Appendix E).

3.10.12
Comment:

- *It is questionable whether SR fall juveniles are present along the shoreline by East Sand Island to benefit from relocating terns. ("Medium is a big benefit if they aren't there.") [17, 27, 33]*

Response: Table 6.9 in the current Opinion estimates the effect of tern relocation on SR fall chinook as Low.

3.11 CLOSING THE GAP – HABITAT

3.11.1
Comment:

- *Unscreened water diversions should have been screened 15 years ago when the stocks were first listed, not proposed as mitigation now. [9]*

Response: The Action Agencies are proposing to screen diversions that are not now screened. Thus, this is appropriate for consideration as part of the UPA and will result in beneficial effects that NOAA Fisheries considered in the analysis of this Opinion.

3.11.2
Comment:

- *Survival through the estuary is unknown, so survival benefits to be gained from estuary improvements are highly speculative. [8]*

Response: NOAA Fisheries acknowledges the uncertainty surrounding salmonid survival through the estuary. However, NOAA Fisheries believes that it used the best available science to approach the effect of the action on salmonid survival in the estuary. This approach is described in Appendix E.

3.11.3
Comment:

- *Habitat improvements are unlikely to happen or to be sustained. [8]*

Response: The Action Agencies have committed to implement tributary actions in order to achieve performance goals (i.e., number of screens replaced, number of cfs returned to stream, etc.) at 3 and 6 years. Implementation of these actions is within the discretion of the Action Agencies. NOAA Fisheries evaluated the potential benefit of achieving these performance goals by applying the approach described in Appendix E. As Appendix E describes, NOAA assumed that these projects would ameliorate a critical limiting factor within a stream reach. For example, a project proposed to restore access to a stream reach would restore access to a reach that was previously completely blocked or functionally blocked to the population at the time that it was critical to spawning or rearing. NOAA Fisheries considered the potential benefit of this restored access against the potential to improve population condition and habitat condition by addressing specific limiting factors in Appendix E. The approach and potentials derived in Appendix E rely heavily on Comanager data, assessments, and plans. NOAA Fisheries assumes that projects implemented in tributary subbasins will be: selected based on the likelihood that they will address the most significant limiting factors; distributed within the subbasin, based on the known distribution of ecological and biological limiting factors; and prioritized for implementation, based on a schedule that will yield the largest benefit to the population. Further, the Action

Agencies propose to implement R, M & E programs to determine the effect of habitat actions and can adjust their metric goals through adaptive management as necessary to achieve biological objectives.

3.11.4
Comment:

- *All populations must be addressed by habitat improvement. It doesn't work to say there's a gap for the whole ESU and fix it by helping only a part of the ESU. [16, 17, 49]*

Response: NOAA Fisheries agrees that an action affecting an entire ESU, including all of its constituent populations, requires an offsetting measure that is equally relevant at the ESU level. An offsetting action that benefits a lesser number of populations than those adversely affected will require a biological basis for its equivalency at the ESU level. NOAA Fisheries describes its approach to determining biological equivalency in Section 1.2.5, Section 6.0**,** and Section 8.1.1 of the Opinion. NOAA Fisheries considered effects of the action on an ESU by first considering effects on individual populations, then on major population groups identified by Technical Recovery Teams (TRTs), and finally on the ESU as a whole. Effects on populations and major population groups were described in Section 6.0. In judging whether a reduction in the numbers, productivity, or distribution of an ESU constituted an appreciable reduction in the likelihood of the ESU's survival and recovery, NOAA Fisheries considered the following factors: Number of Major Population Groups in the ESU, Proportion of Major Population Groups with Reduced Numbers, Productivity, or Distribution, Magnitude of the Reduction for Affected Major Population Group(s), Range-wide Status of the ESU, Status of the ESU in the Action Area (Environmental Baseline), Impact of Cumulative Effects on the Status of the ESU in the Action Area**,** and Uncertainty.

3.11.5
Comment:

- *If the Umatilla and Yakima rivers are more degraded than the John Day, why is the mitigation happening in the John Day, and why does it not address the John Day's two most limiting factors? [49]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.11.6
Comment:

- *NOAA Fisheries should create a crediting system for habitat improvements or take them out of the BiOp. [37]*

Response: In Section 6.0 NOAA Fisheries describes its approach to estimating qualitative benefit to offsetting actions.

3.11.7
Comment:

- *The BiOp says the SR Subbasin Plan is its source for info that sockeye get lost in irrigation diversions, but the plan just says "fish," not specifically sockeye. [17]*

Response: In reviewing the figures in Appendix E, IDFG noted no specific reference to sockeye salmon and recommended that paragraph 3 of Section 4.3.13 be modified to correct this suspected error. NOAA Fisheries agrees and has taken IDFG's recommendation. The section has been changed to remove the specific reference to sockeye.

3.11.8
Comment:

- *NOAA Fisheries should require the Action Agencies to improve habitat by increasing flows (which would also help salinity and temperature, two factors not addressed in the BiOp. [27, 32]*

Response: The Action Agencies' intent to address flows is described generally in Section I.A of the Final Updated Proposed Action and more specifically in the subbasins where habitat offsetting actions are proposed. It is the Action Agencies' discretion to define the various elements of the proposed action.

3.11.9
Comment:

- *If there is no requirement to mitigate, why does NOAA suggest habitat improvements as offsite mitigation for FCRPS operations, as it does at Appendix E? [28]*

Response: Appendix E describes an approach to evaluate the qualitative benefit that might accrue from implementing actions focused on correcting habitat factors that limit the status of populations. It is the Action Agencies' discretion to define the various elements of the proposed action.

3.11.10
Comment:

- *Adverse effects are immediate, but most mitigation takes a long time to produce benefits. [16, 17]*

Response: NOAA Fisheries recognizes the lag between implementation of beneficial actions and physical and biological response. As described in Section 8.0, NOAA Fisheries considered whether the beneficial effects of some components of the proposed action would be delayed relative to the proposed action's adverse effects and then considered the status and viability of the population during the lag period. NOAA Fisheries would conclude that there would be an appreciable reduction in the likelihood of survival and recovery if population abundance or productivity were too low during the lag period to respond to later beneficial effects.

3.11.11
Comment:

- *The actions are not connected to biological requirements of the fish. [27, 44]*

Response: The approach and potentials derived in Appendix E are based on current knowledge of factors which limit individual salmonid populations. This approach relies heavily on Comanager data, assessments, and plans. NOAA Fisheries assumes that projects implemented in the estuary and in tributary subbasins will be: selected, based on the likelihood that they will address the most significant limiting factors; distributed within the estuary or subbasin, based on the known distribution of ecological and biological limiting factors; and prioritized for implementation, based on a schedule that will yield the largest benefit to the population.

3.11.12
Comment:

- *The actions are not coordinated with subbasin planning activities. [33]*

Response: The degree of coordination between habitat offset actions and subbasin plans is described in Section I.E of the Action Agencies' Final Updated Proposed Action.

3.11.13
Comment:

- *The description of the tributary effects to sockeye display a lack of representation of the available literature. [17]*

Response: NOAA Fisheries' discussion of tributary habitat relies heavily on available Federal and Comanager data, assessments, and plans, as well as available scientific literature. NOAA Fisheries used the best science currently available. The consultation regulations provide for reinitiation of consultation if new information warrants such. 50 C.F.R. § 402.16

3.11.14
Comment:

- *Appendix E, Section 10.1, contains numerous inaccuracies in characterizing the Klickitat subbasin. [43]*

Response: Klickitat County provided a lengthy response to the BiOp's discussion of the Klickitat subbasin, noting in particular that, "Yakama Reservation Lands are actively managed for timber and heavily roaded." Based on field observations, as stated in the BiOp, NOAA Fisheries continues to believe that much of the watershed on the Reservation remains unaltered. While NOAA Fisheries acknowledges that portions of the Klickitat within the Reservation are heavily roaded and actively managed, the BiOp's statement is still accurate and therefore was not changed. In another comment, it was recommended that NOAA Fisheries delete Swale Creek, which has been done. Klickitat County also asserted that the efforts of local citizenry should be recognized. NOAA Fisheries agreed that statements pertaining to local involvement were inaccurate and inappropriate, so the BiOp was edited to remove the statement. Klickitat County felt the ratings of potential for improvement given on the table were too high, noting "there is

little to fix." While disagreeing that the watershed is minimally affected by land use, NOAA Fisheries acknowledges having been unaware of local restoration activities and is pleased to learn of recent efforts to improve forest roads and reduce grazing effects. The BiOp has been edited to reflect these recent efforts.

3.11.15
Comment:

- *The Tribes are concerned with the rationale for neglecting certain areas that may have a strong need for restoration to occur. [8]*

Response: NOAA Fisheries fully intends to continue to work with Comanagers to prioritize and implement projects that have a high likelihood of meeting biological objectives in a number of restoration venues. However, the statute permits the Action Agencies to propose to implement an action in any manner consistent with their discretion and authorities. In the draft BiOp, NOAA Fisheries is simply evaluating the action proposed by the Action Agencies.

3.11.16
Comment:

- *NOAA has not defined adequate habitat conditions, involving sufficiency of abundance, productivity, spatial structure, and diversity, for the populations that comprise the ESU. This definitional work is still ongoing by the individual TRTs. NOAA does not present a proxy in this draft BiOp. [8]*

Response: NOAA Fisheries agrees that this effort will be valuably informed when the TRT finishes its work on populations and VSP. However, NOAA Fisheries must use the best available science and cannot wait until the TRTs have completed their work. Until then, NOAA Fisheries has described its approach to use the best available science in Appendix E and in the BiOp.

3.11.17
Comment:

- *If a subbasin is not considered part of the action area – where are the impacts of actions in that subbasin considered, and for those subbasins that are included in the action area, the Draft BiOp does not identify or consider any action occurring before the year 2000. [8]*

Response: The impacts of actions outside of the Action Area are considered in the status of the ESU as described in our regulations. See 50 C.F.R. § 402.14(g). NOAA Fisheries has revised the environmental baseline of the action area to incorporate actions implemented prior to 2000.

3.11.18

Comment:

- *In section 5.3.1.3 Snake River Spring/summer Chinook, Tributary Habitat Conditions, pp. 5-26 to 5-29: NOAAF provides little in the way of historical context. The tributary habitat impacts described in this section predate, for the most part, the FCRPS completion, yet do not necessarily predate the historical population sizes used for intrinsic potential analysis (Appendix E).*

Response: NOAA Fisheries used the data on redd counts from 1957-1966, as they were the best available data. The process of determining the environmental baseline is different from the analysis completed for Appendix E. And for these subbasins, NOAA Fisheries agrees that most of the limitations may be from out-of-basin effects.

3.11.19

Comment:

- *In Appendix E, table 9-1 on page E9-2 indicates the Okanogan has a high intrinsic potential yet a low improvement potential based on practical constraints. The agencies have misjudged the political constraints to achieve biological benefits. [47]*

Response: NOAA Fisheries agrees with this determination and has changed the ranking in column six of table 9-1 to a "high."

3.11.20

Comment:

- *NOAA used "uncertain and qualitative methodology to judge capability to support increases in UCR spring chinook and UCR steelhead" in the Okanogan Basin. [47]*

Response: The work that the Northwest Fisheries Science Center did to judge capability to support increases was quantitative and documented. It also indicates that there is substantial room to improve status for Okanogan steelhead with respect to all four VSP parameters.

3.11.21

Comment:

- *The draft paper entitled "Evaluating the Potential for Improvements to Habitat Condition to Improve Population Status for Eight Salmon and Steelhead ESUs in the Columbia Basin" (Draft, Aug 18, 2004) presented assessments that were intended to identify potential to make positive change in salmon and steelhead population status. The foregoing statements indicate various areas of uncertainty: Ability to accurately identify the historical condition from a theory of intrinsic potential; Ability to accurately identify current condition for the entire Columbia Basin in order to assess the deviation from historic condition; Allowing further degradation in the best remaining habitats that provide all the habitat elements (capacity, which is a function of habitat area and habitat quality; diversity; spatial structure) needed by populations that continue to decline due largely to hydrosystem effects. [47]*

Response: First, this paper is a technical analysis aimed at determining whether it is reasonable to assume that habitat actions could have a positive effect on populations affected by the

hydropower system. This is important for two reasons. Primarily, as a technical document, it does not state NOAA Fisheries policy; it is intended to inform NOAA Fisheries policy- and decision-makers. And, second, these analyses are intentionally limited in scope. They are not intended to serve as subbasin assessments, identifying specific actions in specific locations; nor do they identify the magnitude of change that could be achieved by implementing restoration actions. Rather, they are intended to identify areas where there is a great likelihood that habitat has suffered anthropogenic impairment and areas where it is likely that little anthropogenic impairment has occurred. This narrow scope is intentional due to the almost complete lack of known functional relationships between land use, instream habitat characteristics, and fish population response. NWFSC scientists felt strongly that it was important to respect the lack of information and restrict their analysis to supportable results. The next draft of the document will make these points more clearly.

3.12 CLOSING THE GAP – HATCHERIES

3.12.1
Comment:

- *The captive broodstock program for SR sockeye has been in place since 1992, and no changes are proposed, so the Action Agencies should not be getting credit for it. (It should have a "zero" contribution toward offsetting FCRPS impacts in Table 6.9.) [17, 32].*

Response: The Snake River sockeye salmon captive broodstock (safety-net) program was judged by NOAA Fisheries to qualify for credit in filling the survival gap, because the Action Agencies have discretion over whether to continue this program's funding. The Action Agencies are proposing to expand the current safety-net captive broodstock program to include development of hatchery facilities to produce 150,000 sockeye salmon yearling smolts for release into the Sawtooth Valley of Idaho. NOAA Fisheries believes that the current safety-net program has been a major factor in preventing extinction and continues to help assure preservation of this ESU. The addition of the proposed smolt program is expected to annually return 150 to 450 anadromous adults to the Sawtooth Valley. NOAA Fisheries has judged this to be an important addition to the current conservation program.

3.12.2
Comment:

- *Hatchery offsets are inadequate (NOAA itself says in other reports that hatcheries add fish but don't help and may hinder the other VSP factors). [4, 5]*

Response: The Action Agencies propose to continue operating hatchery programs established under the Northwest Power and Conservation Council Fish and Wildlife Program, expand the sockeye salmon safety-net program (discussed above), and improve the adult trap at Lower Granite Dam. NOAA Fisheries determined that the Action Agencies' proposed hatchery actions provided very little offset, except for Snake River sockeye salmon and, to a lesser extent, Snake River fall chinook salmon. As stated above, NOAA Fisheries judged the sockeye program actions important for improving the viability of the ESU and meriting a Medium level of credit. Improving the adult trap at Lower Granite Dam was judged to provide a Low level of survival

credit for Snake River fall chinook salmon, as it will allow better broodstock management by incorporating natural fish into the hatchery broodstock, increasing the number of out-of-basin strays that can be removed, and improving our ability to monitor the status of the ESU and conduct research. Artificial propagation actions associated with all other ESUs were judged to merit a very Low level of credit or no credit for filling a survival gap.

3.12.3
Comment:

- *There should be supplementation programs for B-Run SR steelhead in the Clearwater, Lochsa, and Selway basins, where there is good habitat and no fish. [53]*

Response: The Action Agencies did not propose new artificial propagation programs to supplement Snake River B-run steelhead. NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.12.4
Comment:

- *Support for the HGMP process has been reduced to a statement that the Action Agencies will only "consider" funding/implementing its suggested reforms. [49]*

Response: NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.12.5
Comment:

- *If there are no new hatchery actions in the UPA because they would have to be initiated by the agencies or tribes with authority over them, why is there an Appendix F on hatcheries in the BiOp? [32}*

Response: The Action Agencies have proposed new actions associated with Snake River sockeye salmon and Snake River fall chinook salmon. In addition to these actions, Appendix F provides some additional suggestions associated with artificial propagation programs where potential offsets may be available if reinitiation of consultation is required in the future.

3.12.6
Comment:

- *The Entiat Nat'l Fish Hatchery should be shifted out of the Entiat basin to the Columbia River below Chief Joseph Dam to protect UCR spring chinook in the Entiat, and it could/should be done right away. [16]*

Response: Actions associated with changes to the Entiat National Fish Hatchery were not part of this consultation, and NOAA Fisheries has not assessed the merits of implementing the recommendation from the commenter. NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.12.7
Comment:

- *Wells Hatchery stock cannot be relied upon to ensure survival/recovery of UCR steelhead, because they are too domesticated, and too many are released into critical habitats where they compete with native fish. [16]*

Response: Actions associated with the Wells Hatchery steelhead program were not part of this consultation, and NOAA Fisheries has not assessed the merits of implementing the recommendation from the commenter. NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.12.8
Comment:

- *More hatcheries are needed to colonize uninhabited stream reaches in the SR basin. [46]*

Response: More or new hatchery programs in the Snake River basin were not part of this consultation (other than for sockeye salmon), and NOAA Fisheries has not assessed the merits of implementing the recommendation from the commenter. NOAA Fisheries consulted upon the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.12.9
Comment:

- *The captive broodstock program for SR sockeye is too small to bring the ESU back to viable levels. [27, 49]*

Response: NOAA Fisheries agrees that the current captive broodstock (safety-net) program has not brought this ESU back to viable levels. However, the objective of the program is to assure the preservation of the ESU, which it has successfully accomplished. NOAA Fisheries considers the current captive broodstock program as a major factor in preventing the Snake River sockeye salmon ESU from going extinct. The Action Agencies proposed to expand the current captive broodstock safety-net program to include production of approximately 150,000 yearling smolts

beginning in 2008. This additional action is expected to return 150 to 450 adult sockeye salmon annually to the Sawtooth Valley.

3.12.10
Comment:
- *Appendix F is incomplete, because it fails to reference coho and LCR chinook. [49]*

Response: NOAA Fisheries acknowledges that Appendix F does not reference coho salmon or Lower Columbia River chinook salmon, but this had no effect on our analysis of the proposed action.

3.12.11
Comments:
- *The Opinion makes numerous recommendations on the potential for artificial propagation to reduce risk, but provides little or no evidence as to why. [17]*
- *A number of suggested programs in Appendix F would have the same risks they are proposed to eliminate [17*]

Response: NOAA Fisheries has identified four primary ways hatcheries can harm natural-origin salmon and steelhead: (1) ecological effects, (2) genetic effects, (3) over-harvest effects, and (4) masking effects. These are briefly discussed in the Environmental Baseline for Artificial Propagation Programs (see Section 5.3.5). The comment refers to Appendix F, which identifies general suggestions from NOAA Fisheries for reducing one or more of the risk factors. NOAA Fisheries acknowledges that a broader description and assessment would be needed for any specific action to be implemented under these general recommendations. The Action Agencies have incorporated recommendations associated with Snake River sockeye salmon (i.e., expanding the current captive broodstock program) and Snake River fall chinook (i.e., improving the adult trap at Lower Granite Dam) into their UPA, and NOAA Fisheries discussed both actions in its analysis of the effects of the proposed action.

3.12.12
Comment:
- *Ratepayer dollars should not be spent on the hatchery actions BPA funds if they are not going to count toward filling the gap. [44]*

Response: NOAA Fisheries consulted on the action, as proposed in the UPA, and found that it was not likely to jeopardize listed species or adversely modify designated critical habitat. NOAA Fisheries did discuss the scope of the UPA with the Action Agencies, and the Action Agencies will be addressing comments related to UPA scope when they issue their records of decision.

3.12.13
Comment:
- *There is no information that suggests that developing HGMPs will provide any survival benefit relative to effects of operating the FCRPS. [17]*

Response: NOAA Fisheries agrees with the comment and did not credit any survival benefit from developing HGMPs in the Opinion.

3.13 CUMULATIVE EFFECTS

3.13.1
Comment:

- *It is not correct to say that population growth will result in continued habitat degradation, because there have been land use changes, new rules, and voluntary improvements. [17]*

Response: This is a very general comment that is typical for cumulative effects analyses for such a large area. NOAA Fisheries considered these factors in Section 7.0 of the Opinion when it applied the "reasonably certain to occur" standard, necessary to find a cumulative effect.

3.13.2
Comment:

- *How does the cumulative effects discussion connect with the gap analysis? [33, 44]*

Response: NOAA Fisheries must consider the influence of non-Federal actions that are reasonably certain to occur in the action area. The key question is whether inclusion of cumulative effects modifies the characterization of the environmental baseline in the action area. The effects of the action are considered along with the environmental baseline and the predicted cumulative effects to determine the overall effects to the species.

3.13.3
Comment:

- *The cumulative effects analysis is weak and lacking in data. [16, 27, 49]*

Response: NOAA Fisheries identifies and evaluates cumulative effects within the action area. In addition to using the best scientific information available, NOAA Fisheries proactively sought to obtain new information from Comanagers in order to more accurately consider beneficial and adverse effects from the potentially many and diverse actions being implemented across the region. Responses received from Comanagers were included in NOAA Fisheries' analysis of cumulative effects, although their information was not comprehensive and specific. Therefore NOAA Fisheries' analysis was necessarily somewhat general, drawing upon subbasin assessments for some watersheds in the action area.

3.13.4
Comment:

- *The cumulative effects analysis does not include lower Columbia River. [44]*

Response: NOAA Fisheries added an evaluation of cumulative effects for the Columbia River and estuary.

3.13.5
Comment:

- *The cumulative effects analysis does not include upcoming improvements required by new forest practice rules. [44]*

Response: Absent specific information about the extent and location of forest practices over time and within the action area, NOAA Fisheries could only generally rely on the continuation of frequently occurring forest practices into the immediate future. Any more specific reliance on future non-Federal forest practices, especially into the more distant future, is too speculative to meet the "reasonably certain to occur" test of the "cumulative effects" regulatory definition.

3.14 EFFECTS OF THE PROPOSED ACTION

3.14.1
Comment:

- *The BiOp says FCRPS effects on SR sockeye are the same as for SR spring/summers, but sockeye are more susceptible to descaling in collection systems, which will increase because of reduced spill. [17]*

Response: The Opinion acknowledges that the survival rate of juvenile sockeye salmon is likely lower than the survival rate of other spring-migrating ESUs (e.g., Section 6.14.1.2.1). However, the relevant question is whether the proportional difference in survival between the reference operation and the proposed operation is likely to be different for SR sockeye, compared to other spring-migrating yearling juveniles. The operational differences between the reference and proposed operations in the spring will affect all three spring-migrating SR ESUs. The absolute survival rate of an ESU is not a good predictor of the proportional difference in survival between the reference and proposed operations, since SR steelhead, which have a lower absolute survival rate than SR spring/summer chinook, also have a smaller "gap" between effects of the reference and proposed operations (e.g., Table 6.11). NOAA Fisheries concluded that the range of proportional survival differences calculated for SR spring/summer chinook and SR steelhead constituted the best and only) available information for approximating the survival "gap" for SR sockeye salmon (Section 6.14.1.2.1). This information was used solely to assign a qualitative category ("Low") to the SR sockeye salmon "gap."

3.15 PERFORMANCE STANDARDS

3.15.1
Comment:

- *The Action Agencies should be required to provide a complete M&E plan that includes collaboration with stakeholders (e.g., they have known since 2002 that spill at Bonneville Dam was below BiOp requirements, but they didn't report it until 2004.) [17, 23, 32, 33, 49]*

Response: Section 4 of the UPA proposed to develop a comprehensive RM&E plan in collaboration with regional entities, including states and Tribes.

3.15.2
Comment:

- *How is continuing operation of the SR sockeye art prop program a performance standard? [42]*

Response: The Action Agencies propose to continue the captive broodstock safety-net and expand the program to include a 150,000 yearling smolt program for release into Sawtooth Valley lakes beginning in 2008. NOAA Fisheries will consider the performance standard as being met if approximately 150,000 sockeye salmon smolts are released beginning in 2008. This is a clear and measurable action, which NOAA Fisheries expects will return 150 to 450 anadromous sockeye salmon adults annually to help seed available habitat.

3.15.3
Comment:

- *NOAA Fisheries should establish system-wide and dam-specific performance standards for ESA-listed fish and then allow the Action Agencies to modify their mitigation programs to meet the standards. [37]*

Response: The "Hydro Operations Juvenile Survival Performance Standard" described in Section 6.2.3.1.1 sets system-wide standards that the Action Agencies can meet through modified actions. Dam-specific performance standards have not been defined, because it is anticipated that some of the modified activities are likely to involve non-hydro offsetting actions, which are best evaluated in the context of system survival.

3.15.4
Comment:

- *The BiOp contains no benchmarks for survival and recovery. [42, 44]*

Response: The Opinion evaluates whether the proposed action is likely to appreciably reduce the likelihood of survival and recovery. As discussed in the response to Comment #3.1.22, the existing likelihood of survival and recovery is relevant, rather than benchmarks or "goalposts" for future performance of the ESU. The available information regarding status of stocks, including any available information related to interim recovery goals, is reviewed in Section 4 and included as a consideration in Section 8.0 conclusions for evaluating whether reductions in numbers, reproduction or distribution identified in Section 6.0 constitute an appreciable reduction in the likelihood of survival and recovery

3.16 CONCLUSIONS

3.16.1
Comment:

- *The bar is set too high, because it assumes continuation of favorable ocean conditions, which appear to be changing right now. [8, 10, 16, 27, 30, 32, 33, 35, 42]*

Response: The conclusions of the Opinion do not presume continuation of favorable ocean conditions. As explained, for example, in Section 8.3, NOAA Fisheries' reference to strong returns in recent years as a relevant consideration is not related to expectations about future above-average survival rates: "The progeny of the strong returns of adults during the past four years will be returning as adults over the next several years. While NOAA Fisheries does not yet know the survival rates that these upcoming broods are experiencing, the high numbers of spawners during the last few years suggest that initial production of eggs and early life stages likely was above average. Even average survival rates, coupled with above-average initial production, would result in above-average adult returns over the next few brood cycles."

3.16.2
Comment:

- *Status of stocks not adequately considered, especially SR falls, UCR springs, SR and UCR steelhead, and SR sockeye. [9, 14, 16, 27, 30, 49]*

Response: NOAA Fisheries considers the status of the ESU, including its population trends and other relevant attributes, when applying the jeopardy and critical habitat standards. 50 C.F.R. § 402.14(g) requires this consideration when determining whether the action jeopardizes or destroys or adversely modifies critical habitat. Therefore, when judging the significance of any adverse effects (reductions in reproduction, numbers or distribution, or alterations in essential features of critical habitat) NOAA considers the status of the ESU, including the steepness of any decline in that status. The worse the status, the more likely that an adverse effect will "appreciably reduce the likelihood of both survival and recovery" (jeopardy) or "appreciably diminish the value of critical habitat for survival and/or recovery" (critical habitat with alternative modification). The condition of the environmental baseline and cumulative effects equally influence these determinations in the same way the status of the ESU does.

3.16.3
Comment:

- *"NOAA's no-jeopardy call seems to be contingent upon a variety of factors, such as: continued large runs, meeting performance standards, and short duration of the proposed action. The ESA does not allow a no-jeopardy call that depends on certain occurrences." [28]*

Response: NOAA Fisheries considered a variety of factors in determining if the proposed action is likely to result in an appreciable reduction in the likelihood of survival and recovery of the ESU. See Section 8.0 of the Opinion.

3.17 INCIDENTAL TAKE STATEMENT

3.17.1
Comment:

- *Giving the Action Agencies an open-ended system for future trading of actions and measures does not provide enough certainty to justify the incidental take statement. [32, 53]*

Response: This comment is addressed in the text of the Opinion in Section 10.5.2.1.

3.17.2
Comment:

- *The Incidental Take Statement ignores up to 94% of mortality by burying it in the reference operation. [27]*

Response: NOAA Fisheries can only authorize take that is caused by the UPA. See Comment #3.1.1, above, for a discussion of the difference between the UPA and the environmental baseline.

3.18 OTHER

3.18.1
Comment:

- *The TMT should be an advisory body with less authority than under the current system. [12, 19, 20, 21, 25, 40, 44]*

Response: The TMT participants analyze and discuss the data in view of current circumstances and make a recommendation to the Action Agencies. The Action Agencies can accept the recommendation, which they frequently do, or reject the recommendation and ask that the issue be elevated to the IT for further consideration. However, nothing in the Regional Forum process is intended to dilute or remove the authority of any agency or Tribe, and the appropriate Action Agency is responsible for the final decision on whether to implement or not implement a recommended action.

3.18.2
Comment:

- *Comanagers should not be able to submit a "System Operations Request that demands modification of hydro operations…" [37]*

Response: The System Operation Request (SOR) is the vehicle by which the Comanagers formally identify and request an operation they believe would benefit fish. The SOR is then analyzed and discussed among the TMT participants for both its biological benefit and operational feasibility. The ultimate decision to implement or reject an SOR rests with the action agency with the authority to make the decision.

3.18.3
Comment:

- *The role of the Regional Forum should be revised to include greater participation from all stakeholders and the Council's recommendations to make the Regional Forum more efficient should be given consideration. [40, 44]*

Response: The Action Agencies and NOAA Fisheries have invited and encouraged participation by the four northwest states and Alaska, 13 Columbia River tribes, CRITFC, USFWS, EPA, the

Council, the Mid-Columbia PUDs, and Idaho Power Company. The charter for the Forum also allows participation by the Council, Idaho Power Company, and the mid- Columbia PUDs as *ex officio* members. Most meetings of the Regional Forum are professionally facilitated, and all are open to the public. Opportunity for pubic participation is always included. Detailed meeting minutes are distributed to members and the public and are available for review at the NOAA Fisheries Hydro Division in Portland, or on NOAA's Northwest Region Web page at www.nwr.noaa.gov/1hydrop/hydroweb/default.html.

The Council's Mainstem Amendment to the 2000 Columbia Fiver Basin Fish and Wildlife Program called for possible co-sponsorship of the Regional Forum by the Council, along with improved public access to and decision-making within the Forum. The Council also has recommended the reestablishment of an Executive Level to address longer-term strategic issues and solutions. The Council is currently considering how best to proceed, and NOAA Fisheries and the Action Agencies are in discussions with Council staff on how the intent of the amendment might be accommodated while achieving the goals of the Forum. No decision has been made yet.

3.18.4
Comment:

- The UPA states that Dworshak Dam will "draft to meet salmon flow objectives during July-August with draft limit of 1520 ft. by August 31." This apparent lack of discretion regarding the date of maximum drawdown contradicts the pending agreement related to the Dworshak Stored Water Agreement. [52]

Response: In response to this comment, the draft limit at Dworshak was changed to 1520 feet in September. The final hydrologic modeling assumed the time-frame was mid-September.

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